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Childhood Education

Using What We Know About Children
SCIENCE LEARNINGS

MARCH 1950

JOURNAL OF
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Childhood Education

For Those Concerned with Children

To Stimulate Thinking Rather Than Advocate Fixed Practice

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Next Month—

"Using What We Know About Children in Educating for Healthful Lving" is the theme for the April issue. Rose Lammel has helped to plan the content and has written the introductory editorial.

A symposium on cooperating to solve problems through community agencies, and articles on what makes a healthful school day, how to make educational use of health examinations, the relation of sex education to health education, the importance of children's social well-being to their mental health constitute the content. The first prerequisite —a healthy teacher—sets the keynote for the issue.

News and reviews to keep you up to date.

EDUCATIONAL PRESS ASSOCIATION OF AMERICA

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Toward Understanding and Security

OUR CONCERN FOR CHILDREN IS AN immediate concern. We want understanding and security for them in an ever-changing world. No longer do we see our children as tomorrow's citizens, tomorrow's participants, but as today's. Is it possible for science experiences to help children become more secure in, more understanding of the world about them?

The environment of every child exhibits many constant factors. Light, heat, water, and certain gases are necessary for the survival of plant and animal life. Water and wind cause rocks to be broken into soil. Animals need certain food materials. Electricity, light, magnetism, heat, and sound are types of energy which man has learned to control partially. These, and many others, are constants in the environment.

Children gain security through having real experiences connected with these factors. Reading about guinea pigs and chickens is not enough. Reading about a dry cell and lights is not enough. Reading about the washing away of soil is not enough. Children must handle, see, smell, experience the things of their environment. They must gain security through thoroughly experiencing the real world about them.

Yet, this same environment is constantly changing. There are varying amounts of heat and light and wind and rain from day to day. Animals are born. Animals die. The leaves of many trees change throughout the year. Some flowering plants bloom for only a few weeks; others, for a longer time.

But these are not the only variations. The scope of the child's environment is constantly changing. As he grows, his environment enlarges until it includes the whole world and even those bodies which are beyond the earth. Experiencing such environmental changes is perhaps the only way to gain the security of feeling able to meet changes which are sure to come. We must help children be so aware of and secure in change that they gain the understanding that change, in itself, is a constant factor in the environment.

In addition to the mere experiencing of the environment, there must come understanding. Too often children are given little opportunity to work through a problem by themselves and in cooperation with others. We know that young children are curious. Let's foster curiosity! We can help children resolve some of their curiosities by giving them the materials, the space, and the time to work through their problems. Materials, space, and time are not always easy to provide. But, when we know that security comes in part through understanding, we are willing to make a real attempt to provide these things.

SCIENCE EXPERIENCES OFFER UNUSUAL opportunities in working toward understanding and security. Certainly, these are not the only experiences which will help. But they are valuable assets in the hands of the wise and understanding teacher who is at all times concerned with the total growth of individual children.—*By* KATHERINE E. HILL, *associate professor of education, New York University.*

Philadelphia Public Schools

What Difference Does It Make?

THIS SCIENCE TEACHING THAT SO MANY people are talking about in the elementary school—what is it supposed to do for children? What difference is it supposed to make? How are pupils who have experiences in science supposed to be

different from those who have not?

To answer questions like these we often quote our objectives:

- to give pupils important organized science information useful in solving problems in their environment
- to help pupils learn to be better problem solvers
- to help children to be more scientific in their attitudes
- to give children a greater appreciation of the wonders of the world.

We would probably all agree that children who grow in these knowledges, skills, attitudes and appreciations are changing in the right direction. There would, however, be disagreement if we tried to answer the question: Are the science experiences our children now receive attaining these objectives? I'm afraid to this I would answer, "No, not yet. At least not in many of our schools."

Why? Perhaps for the same reason some of our other teaching is not as successful as it might be: We haven't kept our eyes on the purposes and governed ourselves accordingly. To reach toward these objectives a science program must:

- deal with problems that make a difference in the lives of children
- help children to solve these problems in a truly scientific spirit
- be stimulating in its approach and satisfying to children in its results
- be concerned with big ideas and not with the memorization of countless unimportant details.

For example? Well, take the idea of helping girls and boys grow in scientific ways of looking at things. How often in your classroom is there real sensible opportunity to look at a matter from every side before deciding, to challenge sources of information, to organize information to see that it bears on a given problem, to change one's mind on the basis of further evidence, to remain open-minded in the face of inconclusive evidence, to propose an hypothesis and then to verify it, and to make new discoveries and check them with reliable sources?

Every hour, every day there should be opportunities to do these things until the attitudes children can develop become a part of their mental equipment. These opportunities should begin in the preschool and continue throughout life. Then their study of science will have made a difference to children and young people.

In contrast, how often in your classroom do pupils decide on action just because *one* person suggests it? How often do the children take the first source of evidence available and look no further? How often do you do the thinking for them by telling them the page and sentence on which they can find the answer, or when they are wrong by giving them the correct answer, or in some other way do their thinking for them? How often do pupils arrive at a big generalization by having performed *one* experiment *once?* How often do they quote material and never mention the source? How often do they take things for granted without even the most superficial investigation?

IT IS QUESTIONS SUCH AS THESE THAT we must ask ourselves about each of our objectives and on the basis of truly scientific answers decide whether or not our science experiences really make a difference in the lives of girls and boys.—*By* GLENN O. BLOUGH, *specialist for elementary science,* FSA, *Office of Education.*

By RALPH C. PRESTON

Using What We Know About Children *In Developing Science Learnings*

Ralph Preston, associate professor of education, University of Pennsylvania, names five of the "striking" needs of children and tells how science experiences can help to meet them.

PERHAPS NO AREA OF STUDY IN THE elementary school offers greater opportunity than does science for fully supplying so many of the needs of childhood. The more one learns about children the more obvious it becomes that science experiences are important ingredients in their development. What needs of the amorphous developing child should teachers consciously seek to fulfill through science experiences? This article will attempt to describe a few of the striking needs and to indicate ways in which they may be met.

First, there is the need to *explore*. "The evidence is overwhelming," writes Lucy Sprague Mitchell, "that the essay in discovery is a native drive of children from kindergarten through high school. If children of these ages do not show this drive, I think we can hold adults responsible—not the children themselves . . . . Curiosity about how things work is one of the strongest drives of young children."[1]

It is well known that many children seem to lose some of their zest for inquiry as they grow up. One reason for this is a widespread practice among schools to siphon off children's energies in the acquisition of a great mass of predigested information. To be sure, there is a need for presenting children with information, but overemphasis on this kind of learning blocks true intellectual development. The need is to avoid a purely authoritarian approach in science teaching. To be sure, textbooks, reference books, scientists, and other authorities should be utilized, but never to the extent that children's natural inquisitiveness is frustrated.

The first task is for the teacher to be sensitive to children's expressed curiosity in a selected field of study and to encourage further curiosity through a stimulating classroom setting, trips, experiments, and vital discussions. If rocks are the subject of study, for example, the classroom may contain boxes or other receptacles for rock collections and a bench with hammers for breaking rocks to obtain specimens with fresh surfaces. Or a trip may be taken to a quarry for collecting and studying a source of commercial rocks.

Such arrangements and experiences are needed both to sustain curiosity and to extend and deepen it. The important matter is to note children's questions, to help them pursue them, and to prevent their becoming engulfed by teacher-planned activities and subject matter which, of course, also are necessary.

To Satisfy Muscle-Hunger

Another of childhood's fundamental needs is to *satisfy muscle-hunger*. This

[1] "Research on the Child's Level: Possibilities, Limitations, and Techniques," **Educational Planning for Peace**, 31st Annual Schoolmen's Week Proceedings, Philadelphia: University of Pennsylvania, 1944. Pp. 111-119.

comes about through participation in learning through motor activity as well as mental activity. "Active" is probably still the best single adjective that applies ubiquitously to the normal child. Overt "doing" is as essential as any element in his learning. It serves biological ends, too, such as the working off of inner tensions. When it is neglected, the child becomes mired in terms and symbols which lead to inaccurate thinking, misconceptions, and fuzzy learning.

The only reliable antidote for such verbalism is activity—utilization of the senses and muscles in soaking up sights and sounds and odors; in manipulating objects; in collecting, constructing, and arranging simple apparatus; and in carrying out a host of other activities. To cite a specific example, it may be noted that many teachers have demonstrated the value of having children impersonate the sun and earth in working out the relationship of these bodies. Such activities help the child to concentrate more fully upon the material at hand, to sense more accurately the reality of situations being studied, and to integrate them into his developing realm of knowledge.

This kind of overt doing should not, of course, constitute more than a portion of the science program. Reading books, listening to oral presentations by others, looking at films, discussing ideas and problems—these are also needed. But the great danger today is not that these more passive activities will be neglected, but that full use will not be made of motor activity as a vehicle of learning.

To Associate With Other Children

Another of children's well-known needs is to *associate with other children* in work and play. Both at home and school they readily and naturally assume obligation for group undertakings if they are at all normal and if circumstances are at all propitious. Teachers are by now well acquainted with the research of Lewin and his associates which has shown so vividly how cooperative pupil participation is more productive of good attitudes, self-control, and sheer learning efficiency than situations in which social interaction among children is kept at a minimum.

In classrooms where children have opportunity for sharing, they grow into increasing cognizance of the need for pooling their thinking and dividing their labor. Teachers who provide for participation are working along with intuitive inclinations of childhood and are making their own labors more challenging and rewarding. It is gratifying to note the trend toward leisurely planning sessions during which teachers and children share responsibility in such matters as supplying equipment for experiments, planning a schedule whereby each child may have his turn in caring for classroom pets or exhibits, and searching for solutions to problems arising from their observations of natural phenomena.

To Have Outlets for Imagination

The child also needs to *have outlets for his rich imaginative life.* Susan Isaacs has pointed out that "We may look upon the inability to join with other children in imaginative and creative play as one of the surest signs of grave inner difficulties that will sooner or later seriously disturb the mental life."[2] Encouraging children to engage in this universal phantasy-play in school is to take advantage of another of the really effective avenues of learning for children. Playing house, motorman or Indian is spontaneous among children and each play-

[2] **The Nursery Years.** New York: Vanguard Press, 1929. P. 99.

subject has its potential share of science content. Children become aware of natural forces through such dramatics as playing farmer, mariner, weatherman, physician, dry dock worker.

The teacher, through selecting stories, pictures, and trips, may help children to gather more data and observe more accurately concerning relevant natural processes. If the learning has been genuine, it will be reflected subsequently in more realistic dramatics. Hence, dramatic play may be viewed not only as an agency through which children consolidate and try out their knowledge of the world, but as a medium through which the teacher discovers gaps in the knowledge of his pupils and clues to desirable future experiences.

Imagination plays still another role in science education. It is closely related to the processes of thought. Any complete act of thinking includes as one stage the formation of a hunch or hypothesis. Children should be encouraged, therefore, to think through for themselves such questons as "Why are silos cylindrical?" and "Why do some birds migrate?" The practice children receive through reasoning from the raw materials of their experience is as valuable as practice in reviewing facts. While teachers should be prepared to supply correct answers, they should avoid short-circuiting the questioning spirit.

To Be Recognized

Finally, consideration should be given in science instruction as elsewhere to the need of each child to *be recognized as an individual.* It is trite to state that children of a given age or grade classification vary considerably in rate of growth, concept development, and other characteristics.

Since each child follows his own individual pattern in developing concepts, science teaching should provide a considerable diversity of activities. In the study of weather, for example, some children, by virtue of their background of experience, rate of mental growth or some other factor may be able to understand little more at a particular time than that air contains moisture which may be precipitated in the form of rain. Others in the same class may be able to think of the air's moisture in terms of the more complex relation between humidity, temperature, and precipitation.

This spread in maturity offers a difficult challenge to the teacher. He must plan a diversity of content so that each child's peculiar interests (whether birds or machines, gardening or electricity), will at some time be pursued. He must plan so that different types of activities (reading, discussing, experimenting, and field trips) occur in each study to insure that each child's best modality of learning will be utilized at some time.

A variety of different levels of reading matter must also be made available so that every child who can read at all will have easy access to studying science through the printed page. The planning of discussions and questions must be such that children of various stages of maturity will find something both to give and to take.

None of these is an easy task. They are, in fact, among the more arduous phases of teaching. Yet ability to provide thus for differences within a group is the hallmark of teaching skill and yields one of the highest forms of professional satisfaction.

It needs to be added parenthetically, however, that while trying to meet individual needs one should not conclude that all children may not profitably

engage in the same study. In a study of weather, all can form a deepening appreciation of man's dependence upon weather conditions, and of man's attempt to predict them and cope with them; all benefit from hearing of the experiences of their classmates (for children learn much from one another at times when they appear unreceptive to adults); all can engage profitably in learning how to record weather conditions; all can check official weather predictions with the weather that occurs; all can engage in group discussion in which observations and discoveries are pooled. These and other classroom experiences are of such a nature that every child can derive something from each that will broaden his own individual mental horizon.

To Put Together . . .

Science teaching in today's elementary schools will be improved when teachers discover the close relationship between the study of science and children's natural impulses. Children are natural explorers and they will get the most out of both science and life if their exploring proclivities find wholesome outlets. In other words, science in the elementary school should not be primarily a bookish affair. It should place before children the opportunity to piece together many of their scattered experiences and to formulate answers to questions which they recognize as important.

Science Experiences for Nine to Twelves

By BEATRICE J. HURLEY

Through interaction with the environment; through concerns, interests, and needs come the cues as to ways and means of helping children deal effectively with their problems of living—the real aim of science teaching. Beatrice Hurley is assistant professor of education at New York University.

As we look at boys and girls in the intermediate grades, ages 9 through 12, we are immediately impressed that their chief characteristic is their individuality. Some are large, well developed, sturdy and skilled in sports such as baseball and swimming. Others are small, immature physically, and relatively unskilled in sports of any kind. Some of these young people are already operating as socially mature and quite independent persons. And in the same room other young people who have lived the same number of years are functioning as socially immature persons, still relying very heavily upon friendly adults for much guidance and help in making decisions.

One thing we find in common with these fine energetic, enthusiastic young people is that they all have problems of one kind or another and that these problems relate directly to understanding themselves in relation to the environment in which they live and work. It is at this point that science can help. For the method—the process—of science teaching has as its real aim helping people find better ways of solving problems.

Let's look for a moment at some of the persistent problems which young people of these ages meet. All of them need to learn better ways of planning. Many of them need to improve their study skills. They need to become more efficient in locating material in books and pamphlets. They need to learn additional ways of finding answers to their problems through discussion, experimentation, and observation. They need to find valid ways of checking their thinking as they come to conclusions about their problems. They need help in learning to work with their peers.

Through Interaction With Their Environment

These techniques of work may be, and in fact are, achieved in several areas of the curriculum. However, since science is dedicated to furthering the scientific method as a way of helping people solve problems, this area of curriculum can be especially fruitful. It might be well to pause here to illustrate how children may be helped to learn to use the scientific method.

The fourth grade class in Room 10 is annoyed by the whistling noise they hear when someone turns on the hot water faucet. It bothers them because they are working on a play they are planning to give soon. John asks, "What can we do to stop that confounded noise?"

There seems to be enough interest in John's question to warrant investigation. The teacher senses the situation and welcomes another opportunity for her group to work together on a problem that touches all of them rather closely. What does she do? How does she operate at this point to further the development of skill in using the scientific method?

Let's look first at what she *does not do.* She *does not* answer John's question herself. She *does not* seem to be impatient or in a hurry to *pass over* John's question *lightly* so that she can "get on" with her preconceived plan of work for the day. She *does not* dismiss the problem by asking one child to go to the library and try to find the answer.

Here's what she does. She *listens* to John's friends as they bring forward suggested answers to the question. Tim wonders if the "thing" needs a new washer. Alice thinks that the janitor might know why the whistle happens only when the hot water faucet is turned on. Mike suggests that a book about what causes sound might help a little. And so it goes.

The teacher quietly notes the foregoing suggestions on the blackboard. She asks for other hunches and clues. She interprets the lack of further suggestions as an indication that these young people have gone as far as they can at this time on their own. She senses that they are inviting suggestions from her. She suggests that John surely has identified a real problem for the class to tackle. She notes that several possible *solutions* to the problem have been suggested.

Although she doesn't say so the teacher is aware that these people are now using two steps involved in the scientific method:

they are identifying the problem
they are bringing forth *probable hunches* or *solutions* for ways to solve it.

She knows now that a third step is imminent—*gathering data.* Activities to gather data will include:

getting books dealing with sound—what it is and how it travels and books dealing with hot water, water pressure and plumbing
interviewing the janitor to inquire what he knows about why their faucet makes that noise
doing some experiments to find out what sound is and how it travels.

What started out to be a bother—"that confounded noise"—now is a matter of group interest and concern. It presents a problem in these children's immediate environment which needs solving.

Work now proceeds through small committees. A few children take on the job of getting books about sound. Another group searches for books about hot water and faucets. Another group seeks out the janitor to invite him to come in *during school time* to help

them. After all, *they want to learn* from the expert. They do not want the teacher to "beat them to the gun." Some children set up experiments to show what sound is and how it travels.

This work takes several days. There are many activities involved. Some *read* while others *experiment*. Some *discuss* while others *invent*. Some *look* and *listen* while others question further. Each day the teacher arranges time for the whole group to come together to *check progress* and to plan next steps. She encourages them to *report* what they are finding out *enroute*.

The class lists new learnings about sound and hot water. Two charts are made where the children list "What We Already Know" and "What We Need to Find Out." These charts facilitate planning for next steps as well as for checking progress.

Finally the group comes to a conclusion about its problem. They know why the hot water faucet whistles. They know how to stop the whistling. Again they are learning to use other steps in the scientific method. A *solution has been found*. This *solution has been checked* for validity.

Detailed description of this experience has been given in the hope that we may the better see how working to find answers to the everyday, earthy, sincere questions of students offers opportunities for helping them experience and learn how to use the scientific method.

Now wherever a group of children and a teacher are gathered together—whether it be in a beautifully appointed new building or in a century-old school house, whether it be in a large city or in a rural area—questions and problems will arise. These questions will represent the concerns, fears, hopes and doubts of the students there assembled. Answering the questions will necessitate using reading, discussion, observation and experimentation skills. It will present the opportunity of learning better ways of solving problems. The plea here is for teachers to recognize that continuity of experience and development of skill in handling problems come through helping young people come to grips with problems involving interacting with their environment.

Planning a continuous program in science for children involves *beginning* with whatever concerns they have. There is no telling just what the nature of these concerns will be. They may run the entire gamut of human experience. For example, they may include Mary's concern for why she weighs so much and Jim's hunger to find out all he can about the possibility of rocket ships reaching the moon in his lifetime.

When will we use what we know about children? This question seems to the point here in regard to helping children gain continuity in their living through science. To the extent that we help young people identify and then attempt to solve their own real personal and social problems, to that extent do we help them find continuity in living.

At the danger of seeming repetitious we emphasize that a good program in science for intermediate grade children must be one that "boils up" out of the day-by-day interaction of these children with their environment—both physical and social—and that helps them deal effectively with the problems of living which they encounter in this environment.

Through Concerns, Interests and Needs

Experience in working with many children of this age group leads us to believe that as we have become more aware of the relationships between both the simple and the profound queries of children and their needs, interests and anxieties we have found the heart of curriculum content whether it be science, social studies or what not. Each area of the curriculum contributes its share to achieving the broad purpose of the ele-

mentary school—namely, developing socially aware, competent, confident citizens.

Where do the queries of children lead us? Let's cite here several brief examples:

THERE IS A WATER SHORTAGE IN THE NEW York area. Wiser use of water is urged over the radio. Newspapers plead for conservation of water.

Alice and Jake get pretty concerned. They, in turn, enlist the interest of their classmates. As a result a rather comprehensive study is launched in their room. It includes a study of the ways water may be used more wisely, how children can help effectively to conserve water at home and at school, and finding answers to such questions as:

> Why in the New York area is there such an acute water shortage?
>
> How can people plan for better use of water?
>
> How can the present water supply be increased?

Answering these questions involves such problems as relation of stream pollution to water supply; relation of drought to water shortage; relation of the lowering of the water table to modern improvements such as air conditioning, widespread use of automatic laundry facilities, and numerous large industrial uses of water. No one need doubt that there is real science content involved in such a study.

A NEW STATE ROAD IS BEING CUT THROUGH the section of land near Peter's school. The children are interested in watching the machines at work. They spend several science periods out of doors observing them. This observation leads to a study of how man uses machines to help him get his work done. The children see steam engines, gasoline engines, and electrical engines all working to help build the new road. They watch, read, experiment and discuss. They find out how these engines work, how man first invented these engines, how modern machines have changed man's way of living.

JANE BRINGS TO SCHOOL THE SAMPLES OF rocks she collected on her recent trip. She shows them to the class. Some children ask questions. Others become interested in collecting rocks for themselves. They begin to walk about with *open* eyes really seeing rocks and minerals for the first time. They ask why rocks look different, how minerals are formed, about the differences between rocks and minerals, and how to identify the rocks and minerals in their own collections. This study of rocks and minerals is the kind of science experience that makes sense to this group of children at this particular time and provides for them continuity in their learning.

Using the resources of one's own community together with the resources of oneself as a teacher; listening and watching to catch through children's questions and actions their concerns, interests and anxieties—in fact using what is known both about children and science seems to hold real hope for providing continuity of learning for those we teach. Further dedication of ourselves to this goal is the challenge which seems to be real and sorely needed today in working with young people everywhere. Helping children learn through the science around them to think more scientifically, to solve problems more successfully, and to grow in appreciation and understanding of their world is the deep concern of teachers.

PROBABLY WE NEED TO BE UNDERSTOOD BY PEOPLE OF OTHER COUNTRIES. ONE OF OUR advanced students was a specialist in early childhood education in the ministry of education of Uruguay. She told us that after living here she was amazed at the culture of North America. In her country when parents reprimanded their daughters for being wild or rude they always said, "Don't be North American." This same young woman was entertained in the White House in Washington and was surprised to find it was furnished in such good taste. She had not expected to find any North American home furnished in what she termed "good taste."—K. RICHARD JOHNSON, *president, National College of Education, Evanston, Illinois.*

By ETHELEEN DANIEL

Science Experiences for the Up to Nines

Through freeing children to observe and experiment in the everyday world about them, we can help them to acquire concepts adequate for intelligent thinking and acting. Etheleen Daniel, supervisor of elementary education, Montgomery County, Maryland, describes simple experiments and observations possible for children in any school community.

FROM BABYHOOD CHILDREN REACT TO conditions necessary to life—food, light, air, water and warmth. From the beginning they use the sensory experiences of feeling, hearing, seeing, tasting, and smelling. They experience friction, energy and gravity in crawling, walking, running, and jumping. They have firsthand experiences with the changing seasons and weather conditions. They learn to manipulate mechanical objects and possibly to care for pets. They notice changes in the day and night sky. Time is understood only through their own and others' activities.

The school in our culture, through its teachers, has some unique functions and responsibilities. One of these is to help each child face the task of acquiring concepts adequate for intelligent thinking and acting. Certain concepts are common to all children—change, space, time, energy, and adaptation of living things. One of the greatest handicaps in the development of true concepts is the lack of enough concrete firsthand experiences. We tend to skip over the raw materials of sensory experiencing to verbalizing about experiences. We tend to use symbols—reading about something—too quickly. Thus, generalizations may be incomplete, based upon faulty facts and opinions or lack of information.

If children are to mature in acquiring true concepts, they will need help in sensing and defining problems, encouragement in suggesting and testing their proposals, and guidance in drawing and checking conclusions with authentic resources. Children can use all of these scientific methods. Through observations and experiments the teacher provides opportunities for children to make use of them.

The children may not proceed in a logical way, step by step, but they will grow in their use of these methods if we as their teachers make use of the same methods and help children to follow us. In general, a curriculum full of concrete experiences based on observations and experiments is more likely to help children build concepts on a natural and realistic basis. What are some of these curriculum experiences?

Energy, Machines, Work

"Will it go?"
"What makes it go?"
"Make it go faster."
"How does it work?"

Much of our culture today is reflected in the materials and objects used by children—materials and objects useful in building science concepts. For example, their toys. A suggestion that they bring them to school is likely to be fruitful.

Popular "go" toys are trains and the answer to "What makes things go?" can

be illustrated by the kinds of trains children have at various levels of development. "What kind of train does your baby brother have?" the teacher may ask.

"He has a push train," is the reply.

The answer to "why does baby brother have a push train?" is that he likes to make things go by using his own energy. So, he has a push train because a push train will not go unless he makes it go.

Later, children use a larger train with wheels. But do they understand why the wheels make it go faster and more easily? Understanding friction is the clue to understanding why wheels make things go better. Friction makes things hard to move. Wheels overcome friction. Things that roll do not rub on the surface upon which they are rolling as much as do flat things. Help children to find this out for themselves by pushing a heavy box. Much energy will be used for little or no movement. Rollers or a broomstick under the box will make the job easier. While pushing a doll carriage, riding a bicycle and other wheel toys, help children to generalize that wheels overcome friction.

Next comes a more realistic train. It uses energy in a different way. This train has a spring. Wind the spring. Now the energy is stored until it is used. Watch this stored-up energy make a train go. Firsthand experiencing is available to the child if he does the winding and watches a spring unwinding. A spring works for us. Children use spring toys but do they understand what makes them go until they have seen a spring wound and unwound?

Something else makes a wind-up train go faster. Tracks are smoother than the surface of the floor. Look at the rough surfaces of a floor or rug through a large magnifying glass. Feel them. Do the same to the smooth surface of simple train tracks. The rougher the surface, the greater the friction. Let children discover and verbalize in their own language that it is easier to push a finger over the smooth surface. This is the concrete stuff out of which concepts of energy, work and friction emerge.

At last, children grow up to the electric train. Electricity makes it go. Electricity is energy, too. This energy is made at a power plant. It comes to us over wires. When we want electricity to work for us, we turn it on. Children soon learn that they do not have to work to make an electric train go.[1]

Thus, from firsthand experiencing, we can help children to generalize that things are moved in many ways. Let them find and arrange pictures to show this generalization—pictures of a child pushing a wheelbarrow or pulling a wagon, a boy riding a bicycle, a horse pulling a wagon, streetcars and trains with overhead trolleys and diesel engines, airplanes and helicopters in flight.

Provide opportunities for the children to become acquainted with other simple machines such as the wheel and axle, the pulley, the lever, the wedge, inclined plane, and the screw. Younger children need not attempt to classify simple machines but to become more aware that machines make work easier and that there are many kinds of machines.

Magnetism

"Is it sticky?"

"Does a magnet work in water?"

"It's a trick."

Magnets are so common in a child's play world that we need not hesitate to make greater use of them in our classrooms. Some children will know that magnets attract iron. Some will not be

[1] With young children it is safer to use simple dry cells and wire in experimenting with electricity.

sure. Some will be puzzled. Use magnets to experiment with bobby pins, glass, paper, thumb tacks, buttons, erasers, pebbles. Use magnets to pick up nails during a clean-up time.

Even with young children we can make greater use of the scientific method. Accept the disbeliever's proposal that the horseshoe magnet is sticky or that it is a trick. Accept his hypotheses that it is magic, tentatively. See if he changes his mind after experimenting with a variety of materials.

"Does the power of a magnet go through a piece of glass?" Encourage experimentation. Try nails, glass or buttons through paper. Try these things in water, through a glass or under a board. Listen to the exact language of children who conclude after experimentation that magnets attract iron and steel; that magnetism acts through other materials.

Changes All About Us

"Charles' baby kittens have opened their eyes."

"The wind broke a limb off an oak tree in the yard."

"The leaves in the compost pile are breaking up. They stink."

"Our garden spade has rusted."

"I am an inch taller."

"Mary's baby brother has a new tooth."

"There is less water in the aquarium."

"It is warmer now than earlier this morning."

Here are some observations of an eight-year-old group that was becoming aware of changes. These changes occurred in one week's time. Make a list from time to time and during different seasons of your children's observations. Watch for sensory experiences of seeing, feeling, hearing, smelling and tasting. Make use of them in concrete situations, thus broadening the base for observing and experimenting.

Teachers know the stimulating effect of changing weather upon children. Make a snow man out of doors, a smaller one on the window sill, and a small one on a tray in the room. Watch the effect of heat from the sun or heat in the room. Notice the relatively small amount of water that is left as the snow melts.

Put the water out doors to freeze. Melt the ice in a pan thus changing a solid back to a liquid form. What comments do the children make that reveal how and to what degree they are forming concepts of change from firsthand experiences with freezing and melting, liquids and solids?

Often children will declare dogmatically that the cloud arising from a kettle of boiling water is smoke. Accept this misconception for the time being. Look upon it as an opportunity to help them gain understanding from a firsthand experience. Let them observe the smoke from burning cloth or wood. Note the change in smell and let them feel the residue.

More and more children use tools in our schools. Care of these tools is essential if they are to be useful. Dramatize changes made by rusting. Drop a few nails into a glass of water. In a few hours look at the brown flakes of iron rust. Watch the nails for a week. Iron flakes accumulate. Help the children to generalize from their observations about other rusting objects such as toys left out of doors, uncleaned garden tools, and larger machinery left in fields.

The decaying of leaves which help to form good soil is one of the most dramatic changes young children can observe. In the autumn they see leaves change in color, dropping, drying, curling, breaking and rotting. Take the children to a deep wooded area if possible. Note the differences in layers of leaves

in the same spot. Dig into lower layers of leaves to note the amount of moisture and odor. Watch for other everyday occurrences where burning, rusting and decaying make changes.

Put a spoonful of salt into a glass of water. It disappears. It does not settle nor can it be strained out through a sieve or cloth. It can be seen when the water containing it evaporates. Try to dissolve sand. It remains sand even though stirred or heated. The sand may settle or it may be strained off.

Encourage experimentation in water with other materials like jello powder, baking soda, and sugar. Use control experiments with the same materials by stirring and heating them in equal amounts of water. Notice how dissolving is hastened by either stirring or heating.

Leave a container of water in the open for a few days. Mark the level of the water from time to time. Encourage the children to tell what is happening. Place a glass cover on the above container and watch the water condense into droplets. Help the children to verbalize this process of evaporation by watching the changes when paste, paints, clay, puddles of water and wet clothes dry. Watch for other everyday occurrences where dissolving, evaporating and condensing make changes.

Young children accept their own growth changes in height gleefully and with pride. Provide a wall chart where children may record their changes in height. They see changes in their own growth and that of their classmates. They learn to accept these differences and to accept themselves.

Living Things

Teachers find that significant data are revealed about the behavior of children in relation to their pets and that their interest in animals ranks high. Many children are denied satisfying experiences with pets except as they are fulfilled through the classrooms. However, we should re-examine some of our practices of bringing animals indoors.

Children will need guidance in deciding whether or not desirable conditions for their pets can be maintained indoors. Is there enough air, warmth, water, food, exercise and space? Plan a time for a special animal to come to school. It should not be kept for long periods in the classroom but a variety of animals can come for short periods. Focus on the concepts to be developed: variety in animal coverings, how animals move, what they eat, how they get their food.

Take the children to see other children's pets and their babies, if possible. This is probably better than having the mothers and babies in the classroom, with a very few exceptions. Focus on concepts such as animals have babies; some animals have one baby at a time, some have many; some animals look like their parents; most animals take care of their babies; some baby animals need a great deal of care; other babies take care of themselves.

Now that the myth of the balanced aquarium is accepted as rare and difficult to achieve, we should help children more frequently to observe animals out of doors in their natural habitats. Children tend to want to take these animals into the classroom. Help them to question if this should be done in terms of the conditions necessary for life and wise conservation practices. When these principles are not violated children should have the opportunity to observe animals at close range over a period of time.

Digging in the ground is a universal

experience among children. Help them to gain more meaning by providing opportunities for them to dig in a variety of places—a garden plot, a meadow, the edge of a woods, a deeply wooded area, a field, a rocky place or a very wet near-swampy place. When digging, look for opportunties to build these concepts: some soils are better for growing plants than are others; leaves and stems of plants die and help to make good soil; some plants look as if they are dead but their roots may be alive; weeds are plants but they often grow in the wrong places; earthworms help to enrich and aerate the soil.

The adaptation of plants through the seasons may provide innumerable opportunities for firsthand experiences. Take the children out of doors when possible, not once but many, many times. Let facts accrue through observations. Record through time and in the colorful language of children the changes appropriate to their environment.

Again, as with animals, children will tend to pull plants without thinking of the conditions necessary for life or wise conservation practices. Focus on such meanings as: there are many kinds of plants; plants grow in different ways as trees, bushes, vines; some plants like trees and annuals live much longer than others; plants grow in different places—in gardens, fields, woods, water; the growth of plants depends upon where they live—in cool or warm air, sandy or wet soil; some plants live through the seasons while others do not.

Indoor planting of every kind of seed for experimental purposes can be done at any time of the year. Note variety in shape, size, and color of the seeds planted. Watch the time for germination of various seeds. Try to provide the cycle of growth from seed to production of more seeds. Use control experiments and vary conditions to discover the amount of warmth, light, and water different plants need. By growing many kinds of plants in the classroom an opportunity is given continually to broaden the experience base so essential in developing concepts.

They Must Be Freed

It is apparent that we may use many universal experiences of children in developing concepts of their physical environment. We must try, therefore, to broaden continually their kinds of experiences if concepts are to be genuine and trustworthy. The relationships between children and their world are revealed through their behavior. Through time, they build up feelings of being adequate or inadequate. For young children adequacy comes through cumulative experiences from which they generalize, thus leading to growth in intelligent thinking and acting.

From adults children need some interpretations and explanations in keeping with their maturity levels. It is likely, however, that there are untapped resources in children's learning from each other, if we will but free them a little more to observe and experiment in the world around them.

A New Friend

By ENOLA LEDBETTER

A merry little Negro girl
Has just moved on our street.
Red ribbons tie her curls away
From laughing eyes and shining face.
She runs on dancing feet!

I'm happy when she comes to call
And when she asks me out to play
Because she doesn't seem to mind
That I am white and she is brown.
She likes me just this way!

Indianapolis Public Schools

MATERIALS . . . . . for Solving *Science Problems*

By GLENN O. BLOUGH and PAUL E. BLACKWOOD

Meaningful science experiences can be provided all children by the teacher who makes use of everyday happenings and simple materials easily available in any environment. Glenn Blough and Paul Blackwood are specialists for elementary science, FSA, Office of Education, Washington, D. C.

"SUCH A RACKET!" SAID THIRD GRADER George.

And so it was. It was "toy day" and the Christmas noise toys were being exposed, explained, and demonstrated. Horns blew, drums beat, xylophones played, bells rang, musical tops spun.

"Too much racket," the teacher agreed with George. "Let's hear them one at a time."

And so they did and somebody said, "Some are high and some are low and some are loud and some are soft."

Somebody asked, "How come?" and another, "What makes them sound?"

"Let's see if we can find out," the

teacher said. "Let's watch the bell when Nathan rings it."

Everybody watches closely. "Can't see a thing," Nate says. "Neither can I," says Ellen.

"Let's touch it while it rings and see what happens," the teacher suggests.

Ellen touches it while it's ringing. "It tickles," she says.

"Let's make it ring and hold it in some water and watch," the teacher suggests.

They do, and somebody says, "The water splashes."

"Look more closely," the teacher cautions.

Then someone says, "It sends out little waves."

The children have started on the road to discovering that things vibrate when they are making sound.

It takes lots of experiences—easy ones—before young children begin to understand that differences in vibrations cause the differences in sounds. Simple equipment to demonstrate these science ideas is not hard to find:

rubber bands of different sizes stretched across cigar boxes
musical instruments from home and school
the school piano with front removed
tuning fork from the music teacher
cymbals from the kindergarten
tumblers from home to fill with varying amounts of water

These are but a few—all simple, all easily available, all from the everyday environment of children. For the teacher's background—any general science textbook for eighth or ninth grade.

Raising Chickens

There's a hen in the second grade and everybody in school knows it! She's hatched her eggs and there are twelve chicks pecking and peeping. There has been discussion in grade two about how the hen looks after her young and from the discussion this problem has come up, "How do other animals take care of their young?"

There is a turtle in the terrarium, some tadpoles and fish in the aquarium. How do they get along without their parents?

Children have pets—dogs, cats and canaries—at home. How do these animals take care of their young?

These are some of the questions raised. How shall they be answered?

By observation of animals at home, on a trip to a farm, on the way to school, and in the school yard.

By reading from easy science books[1] and other material[2] that describe habits of animals.

By gathering flat pictures[3] and seeing movies that show animals caring for their young. The teacher is accumulating such pictures with the aid of children. Back numbers of *The National Geographic Magazine* are very helpful in making such a collection.

By listening to someone from the local museum tell about his experiences with animals and their young.

By looking at motion pictures[4] that show birds and other animals and their young.

By raising hamsters[5] or some other pet in the classroom and observing them.

Again, a variety of materials is as-

[1] **The Elementary Science Library.** Cornell Rural School Leaflet, Teachers Number, September 1949, Vol. 43, No. 1. Ithaca, New York: Cornell University. 20c. Lists approximately two hundred science books for young children with annotations.

[2] **Free and Inexpensive Learning Materials.** Prepared by the Division of Surveys and Field Services, George Peabody College for Teachers. Nashville, Tennessee: Peabody College, 1949. Pp. 175. 25c.

[3] American Museum of Natural History, Central Park West at 79th Street, New York 24, N. Y. Write for catalogue and prices of materials available. American Nature Association, 1214 Sixteenth Street Northwest, Washington, D. C. Price list available.

[4] **Coronet Instructional Films,** Coronet Building, Chicago 1, Illinois. Films such as "Pigs and Elephants," "The Deer and Its Relatives," "The Bear and Its Relatives," "The Cow and Its Relatives," "The Horse and Its Relatives," "The Mammals of the Countryside," and others. Write for lists of titles.

[5] **Hamster Raising.** Agriculture Leaflet No. 250. Washington, 25, D. C.: Superintendent of Documents, U. S. Government Printing Office. 5c.

sembled to help pupils solve their problems.

Watching the Rain

It's raining. The children in grade four watch the drops from the sky strike the window panes and run down. Where does the rain come from? What makes it rain? Where does the water go?

Let's see. Let's put water in open dishes and see what happens. Let's hang a wet cloth up to dry. Let's go out doors after the rain and observe: watch water run off the ground; dig down to see that some of it has soaked into the soil; watch the sidewalk get dry.

Let's find descriptions of easy experiments[6] we can do that show how water goes into the air and comes out again. Let's use a teakettle, a hot plate, and pie tin to make rain. Let's see a motion picture that explains what makes rain.[7]

The experiences are simple and so is the equipment. Many easily observable happenings near at hand become part of the study to give realness to the ideas and to make them clear and understandable.

Using Magnets

John, in grade three, brings a small red magnet to school and demonstrates that it can make a pin jump and that it can pick up a tack even if the tack is under a piece of paper. What else will it pick up? How can it pick them up? What are magnets good for?

These and some other questions are recorded on the blackboard. The teacher asks, "Can anyone bring another magnet tomorrow?"

From out of the junk boxes at home other magnets appear. Some are large and some small. The teacher supplies a bar magnet and alnico magnet from a science kit.[8] Experiments are performed to reveal:

that magnetism will travel through certain things
that some magnets are stronger than others
that magnets have poles and many other such discoveries.

Books are used to find information and to substantiate observations.

Someone brings a small compass. The pupils learn how to make one by floating a magnetized needle on a cork.

Home, community and school have again furnished simple materials useful in solving the problems of children.

Using Machines

Outside the windows of the sixth grade room the steam shovel is chewing away at the ground. Trucks are carrying away the soil. Soon pulleys, inclined planes, levers, wheels and wedges will be doing work. Almost everybody watches from the sixth grade window before school and at recess. How can steam make the shovel work? How can a man lift a wheelbarrow full of bricks by pulling down on a pulley? Why do they put rollers under heavy machines to move them from one place to another?

Interest in machines seems very real. The children in this sixth grade are lucky, for their teacher is curious about the machines too, and she's not afraid to say she doesn't know all of the answers. She reads the section on machines in an eighth grade general science book. She uses some of the most interested boys as sources of information. The

[6] Blackwood, Paul E. **Experimenting in Elementary Science.** Education Briefs No. 12, August 1948, and **Science Experiment Books for Children,** Selected References No. 14, May 1948. Washington 25, D. C.: Federal Security Agency, Office of Education. Single copies free.

[7] **What Makes Rain.** Young America Films, Inc. 18 East Forty-first Street, New York 17, N. Y. Write for catalogue.

[8] **"Science Kit."** A collection of simple equipment for performing experiments with young children. Order from Science Kit, 204 Dexter Street, Tonawanda, New York $36. (See ad page 340).

Stansi Science Kit. Materials and apparatus for use in elementary school. Order from Standard Science Supply Company, 1232 N. Paulina Street, Chicago 22, Illinois. $39.50.

general science teacher in the high school helps her when she needs him. He lends her simple apparatus.

For levers the children use bricks and a board from the school building project and their see-saw to help figure out lever problems. The boys bring several erector sets to school and build machines to illustrate the principles they are learning. Mechanical toys are used for the same purpose.

Textbooks are read for fuller explanations in solving the problems. Tools and machines from the woodworking shop are studied as are the machines brought from home kitchens—egg beaters and can openers. Children explore their surroundings—home, school and community—to see illustrations of how machines are helpful.

Growing Plants

"Let's plant our bulbs today."

"Yes, let's," the pupils chorus.

So the second graders sit down to consider: What do we need? Water? Soil? Plant them outdoors? Indoors? What kind are they? Set them in the sun? In a dark closet? These are some of the questions that become organized into: What do plants need so that they can grow?

The children bring seeds from home and cuttings from house plants. They visit a local greenhouse. They experiment with sprouting seeds and growing plants under various conditions. They observe different kinds of plants—cactus, geraniums, ivy, mosses and ferns—to see how they grow under different conditions. Each child plants a bulb and some seeds of his own and keeps a simple account of how they change as they grow. They write a class story of their activities.

As a result of their indoor activities with plants they decide to have a small outdoor garden. They order seed catalogues, decide after listening carefully to the descriptions in the catalogues which vegetables and flowers are practical for their garden. They make out the seed order, make garden plans, and tend the garden.

Everything for the plant experience—seeds, flower pots, different kinds of soil, plant cuttings, different kinds of plants, and many other similar kinds of materials—comes from the homes of the children or is ordered from catalogues.

Finding the Materials

From these accounts it is obvious that there is much science material available to the alert teacher. It comes from homes, school, and community. It is simple. Its use makes the science experiences real and meaningful. Children can help find it. They can help make it. They can plan together ways to use it.

Sometimes experimenting is the best way to learn; sometimes observing. Sometimes taking a field trip or reading turns out to be more desirable. Often we use every available way to learn as an experience unfolds.[9] Lack of materials is not often a serious block to learning in science if the teacher is interested, realizes the possibilities, and enlists the eager assistance of the boys and girls.

[9] The following books and pamphlets will help elementary school teachers in planning science experiences with their children:

National Elementary Principal. Vol. XXIX, No. 4. February 1950. 1201 Sixteenth Street Northwest. Washington 6, D. C.: Department of Elementary School Principals, National Education Association. 50c.

Blough, Glenn O. and Blackwood, Paul E. **Science Teaching in Rural and Small Town Schools.** Bulletin 1949, No. 5. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office. Pp. 55. 20c.

—**Teaching Elementary Science.** Suggestions for Classroom Teachers. Bulletin 1948, No. 4. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office. Pp. 40. 15c.

Craig, Gerald S. **Science for the Elementary School Teacher.** New York: Ginn and Company, 1946. Pp. 551. $3.20.

Croxton, W. C. **Science in the Elementary School, Including an Activity Program.** New York: McGraw-Hill Book Company, 1937. Pp. 454.

This is Science. Bulletin of the Association for Childhood Education International. Washington, D. C.: the Association, 1945. Pp. 43. 50c.

By BERNICE THOMPSON STROETZEL

How Geneseo Prepares for Winter

How seven-year-olds in the Holcomb School of the State Teachers College, Geneseo, New York, became more aware of their environment and increased their belonging to it is described by Mrs. Stroetzel, supervisor and demonstration teacher.

TWENTY-THREE SEVEN-YEAR-OLDS assigned themselves the task of discovering how Geneseo prepares for winter. The result was a well integrated, purposeful project carried to completion through the combined efforts of townspeople, children, faculty, and students.

In coming to and from school the children discovered warmer clothing in store windows; men picking fruit from trees; window boxes being emptied; and coal being put in basements. They were enthusiastic and observant.

"My father is putting on our storm windows next Saturday," said Molly. "Can't we go up and see him do it?"

"My father is putting on a storm door tomorrow," said Gary. "Tomorrow is Tuesday and a school day. Let's go down to our house instead."

We Go on Excursions

All agreed that a trip to Gary's house was in order. So after consulting his parents to make sure of a welcome and the advisability of the visit, the second grade ventured forth to see a storm door put on a small white house.

But was this all they saw? Far from it. Excited comments were heard even as the children left the school grounds. Someone called, "The janitors are preparing for winter. They are raking leaves and carrying them away."

The snow fence is up!

"Yes, and look at that tractor and snow plow," said another child. "Neither snow nor leaves will bother us."

"There's a squirrel gathering nuts," shouted John. "He's taking them to his home in the tree. He's getting ready for winter."

"Suppose we stop a minute to look out over the valley," suggested the teacher. "What is happening to our beautiful Genesee Valley?"

"It looks brown and bare," volunteered one child.

"The leaves are no longer green," said another.

"Yes, and many leaves have fallen," added still another child as she shuffled through some dry leaves near a snow fence.

"Winter will soon be here but we will be ready for it," said Gary as they came in sight of his father standing by the garage waiting for the children. "Our storm door will help to keep out the cold winter wind."

To enumerate all of the incidents relative to this excursion would be exhaustive. Chief among them, however, was the discovery that a colony of bees was housed next door to Gary's home. The bee keeper very obligingly allowed a picture to be taken and explained much about the care of bees in winter.

Gary's father owned a garage and after putting on the storm door went back to work. The children watched him put anti-freeze in a car. They saw chains hanging in the garage and learned that they would be put on tires when snow blocked the roads and made traveling difficult. Several children remarked that their parents had bought similar chains for their cars and so had helped prepare for winter. Tired but happy the children trudged up the hill. They had ventured forth to learn and had come back well nourished.

The above is but one of many excursions taken over a period of a few weeks. All were equally fruitful. One, for example, lead to the Jam Kitchen—a food preserving plant—where Peggy's mother was helping to can crabapples and Harlow's brother was helping to unload baskets of tomatoes. Another took us to Mary Jane's garden where carrots, beets and other vegetables were being harvested. Still another took us to a home where a grandmother was making grape juice. We saw much and learned considerable.

We Make Books

To record the learnings that took place one large book for the class and twenty-three small books were made by the children. The large book was illustrated with photographs while the small ones were illustrated with drawings made by the children. On the cover of each small book was a photograph of the child who had made it.

The large book consisted of a frontispiece, a table of contents, and twenty-three stories and photographs. Students, children and teacher discussed various ways of putting it together. It was finally decided that finger painting would provide colorful and creative backgrounds for mounting the pictures and stories. Each child then chose a color and made a design to his liking. The colors were varied and the designs interesting. As the pictures were taken and the stories written, they were mounted on oak tag and kept for later assembling into book form. Each story was written after a trip or observation and was dictated to the teacher by the children. They in turn wrote the stories for their own books. The following story is the one used under the pictures of the children near the snow fence:

> Men who work for the village of Geneseo have put up a snow fence. It will help to keep snow off the streets and sidewalks. These men are helping Geneseo prepare for winter.

Similar stories accompanied each picture and served to focus attention on some activity or concept. The children gained steadily in holding to a topic and in giving simple but direct statements. They grew poetic. They learned to be neat and accurate. They lost "self" in working for the common good. They learned to spell in a functional manner many of the spelling words listed for

second grade. They became proficient in following directions. They made a simple but accurate table of contents. They encountered many difficulties in binding and making a book of the right size and durability for practical use in a classroom. In fact the entire project gathered momentum with each new discovery. There seemed no end to the picture-making and activities.

When the book numbered twenty-six pages, snow began to fall and the children gradually centered their interest on other activities. They wanted to "read and read" so that they might be ready for long winter days when reading books would add greatly to winter fun. So the last picture was taken and the last story written. All were placed between heavy blue covers and held together by white roping. Then the children beheld their handiwork. It was a proud moment.

We Belong to Our Community

But what of Geneseo? Had it profited by these activities of the children? The answer is, "Yes." Parent and school relationships had been greatly strengthened. The merchants seemed pleased to be in closer touch with the school and its activities. Certainly the children themselves had come to know and appreciate what Geneseo had to offer its residents, learnings that would make for a more enlightened citizenry in the years to come.

The parents had now become curious and came to visit the Holcomb School. The second grade was ready for them. They presented a dramatization based on the content of their books and each parent received the book made by his child.

The teacher, too, was pleased. She knew that these seven-year-olds had taken big steps in several directions. They had come to appreciate and understand much that goes on in the daily living in their community. They had developed an awareness of their environment and the effect it has on man and his activities. They had gained in sharing and working together. They had made rapid scholastic progress. All this and more had come about because this particular teacher wanted the children entrusted to her care to be ready for third grade. Yes, indeed! But more, much more, did she want them to be prepared for life itself.

Tattlers

By Ruth Leon

My brow furrows
When I am worried;
My eyelids flutter
When I am hurried;
My eyes twinkle
When I am glad;
My chin droops
When I am sad;
My nose twitches
When I am cold;
My lips quiver
When people scold;
My ears ring
When I'm delighted;
My hands tremble
When I'm excited;
My tongue twists
When I'm disturbed;
My feet wobble
When I'm unnerved.
Some part of me
Will always show,
So how I feel
You're sure to know.

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By CATHERINE DILLON

The Museum With a Voice

How science experiences by radio are provided children in the St. Louis public schools is described by Catherine Dillon department of audio-visual education. She tells about the development, planning, and presentation of the program, and concludes with an evaluation of it.

WHEN THE ST. LOUIS BOARD OF EDUCATION opened an educational museum in 1905 its purpose was to bring the world to the child. In its forty-five years of expansion, visual and audio aids have been added continuously to help teachers and children keep pace with time. The new name that the museum now carries —the Division of Audio-Visual Education—implies a greater responsibility to teachers guiding young people over the threshold of this atomic age and faced with the responsibility of educating new generations to live harmoniously in a world rocked by turbulent scientific developments.

In 1944 the Division of Audio-Visual Education was assigned the responsibility of exploring the possibilities of the use of educational radio in the classroom. Starting with news and literature the division presented weekly programs designed for in-school listening. After six years of experimental study the St. Louis Board of Education next month will dedicate its own FM educational station—KSLH. With the throwing of the switch the "Museum with a Voice" will in truth make audio and visual aids available to every school it serves.

Development of the Program

One of the programs that KSLH will carry will be *Science For You*—a popular, experiment-in-your-classroom, participating science program for children in the elementary grades.

In 1945 a new science course of study was adopted for St. Louis schools. Its popularity was reflected in a survey conducted by this division in 1948 among all elementary teachers in order to determine their needs in radio programs. High on the list of expressed needs in programs for grades 4-5-6 was one for science — experimental science. This survey was retained as a program guide, and plans were laid to fill this need as soon as possible. The work began the following fall under the leadership of John Whitney, a consultant in science for the elementary schools and a professor of science at Harris Teachers College. Mr. Whitney, a teacher of teachers, an authority in his field, and a favorite with boys and girls in schools wherever he visited, long had advocated beginning experimental science with young children. He welcomed the opportunity to write the program and began to plan the fourteen programs of the first series with a staff member of the Division of Audio-Visual Education.

Planning the Program

After many conferences it was decided that the core of each program would be a scientific theme or principle of the new course of study. Each program would require and encourage study on the part of the class before the program was heard. The class would draw its own scientific conclusions in the utilization period following the broadcast—conclusions which Mr. Whitney purposely would not state on the program.

Picture I. **Some broadcasts, like this one on *Soil and Soil Water*, are directed to the class as a whole working in groups, each group experimenting with soil samples and tripod magnifier.**

Each program would be a class-participating activity consisting of three or more carefully timed experiments directed by Mr. Whitney and performed simultaneously in the studio and in classrooms. Some broadcasts would be directed to two or three "experimenters" acting for the class and working before them, some to the class as a whole working in groups. (Picture I.)

Mr. Whitney had three specific purposes in mind in preparing each broadcast: to supplement by demonstration the regular curriculum, to establish for children a familiarity with commonly-used laboratory equipment and techniques, and to develop in young boys and girls an open-minded try-it-and-see attitude characteristic of experimental scientists.

Early in December the first program was ready. Since science experiments by air were new to St. Louis children, teachers, this division, and Mr. Whitney, much planning was necessary to insure for the first broadcast the maximum in favorable acceptance. How much could be covered in thirteen and one-half minutes? How fast should the directions be given? How well could small fourth grade hands handle boards and hammers? Would the experimenters be self-conscious? Would the class be attentive

or amused? And, what would be the teachers' and principals' reaction to the program?

There was one accurate way to find out. By means of a tape recorder, Mr. Whitney and three children made a test broadcast and exposed the first pitfalls. The program on levers, for instance, originally carried an experiment in which one child held a broomstick while two others moved bricks, covered with thick layers of paper and tied with loops of stout twine, across the stick. The child holding the cross stick had difficulty in balancing it when the helpers moved the suspended bricks toward and away from the fulcrum. The bricks fell and made it evident that this particular experiment could not be trusted on a radio program. (Picture II.) A simpler experiment using a scissors to demonstrate the importance of the fulcrum was substituted.

This same program was remade three or four times before it was taken to four schools in representative parts of the city. Class reactions were carefully noted and teacher suggestions and criticisms encouraged. After a month of such testing and revision the program was considered ready for broadcast to the schools.

A general after-school assembly was arranged to which all middle-grade teachers, administrators, and the program director of the commercial station that would carry the program were invited. A fourth grade class, with no more preparation than any subsequent class would have from consulting the handbook, was on the auditorium stage. After the purposes of the program and the meeting were explained, the audience watched the class receive the recorded program and listened to the utilization discussion that followed. The enthusiastic reception proved that the program was

Picture II. **The bricks fell . . .**

airworthy, and the next week it made its air debut.

Each radio lesson needed specific preparation and materials. To provide for this a handbook of twenty pages was prepared by the division for each teacher of grades four, five, and six. Each program was outlined on a single page. Titles and catalogue numbers of related audio-visual aids available in this division were included for each program. All the equipment required for the experiments was easy and inexpensive to obtain by children in all parts of the city or was obtainable upon requisition through the supply department. A reprint from the handbook (Program 2) shows the detailed advance written information given the teacher for each broadcast:

PROGRAM 2—LEVERS

Tuesday, March 1, 1949—1:15 p.m.

Radio Station WEW (770)—WEW-FM (95.1)

Theme: With a lever, a large load may be

lifted by a small force. The size of the force required depends upon the size of the load and the relative distances of the load and the force from the fulcrum.

References: Craig: *Science for the Elementary School Teacher*—pp. 414, 417-418. Row, Peterson: Basic Science Series—*Machines; Wonderworld of Science*—Book 3— pp. 83-110. *St. Louis Science Course of Study*—pp. 1-6, 25-37.

Equipment: (General) 2 substantial chairs—teachers' chairs (bentwood chairs should not be used). 1 table or desk upon which articles named below should be placed. (Special) 1 smooth board approximately 5-8 feet long; 4-6 inches wide; 1-2 inches thick. 1 ordinary carpenter's claw hammer. 2 or 3 six-penny nails (2 inches). Finishing nails cannot be used. 1 pair scissors with very long blades. 1 piece of stiff cardboard (block back).

Experimenters: 1 small girl, 1 boy (average size), 1 boy (heavy physique).

Note: (1) The heavy boy should not be sensitive about his size since attention will be called to it repeatedly during the program. (2) The experimenters will be given special names by Mr. Whitney for identification purposes. (3) The experimenters and the class should have ample opportunity before broadcast time to identify each item of equipment. (4) Provide clear floor space around the chairs so that experimenters can move freely around them in all directions.

Audio-visual Aids:

Catalogue No.	*Type*	*Title*
908	Apparatus	Levers and Uses
1252a	Sound Film	Simple Machines
1745	Silent Film	Simple Machines
2248e	Film Strip	Tools and Simple Machines
2248g	Film Strip	Simple Machines
3472e	Booklets	Experiments for Boys and Girls in Lower Grades
3472e-1	Booklets	Science Experiments for Children

In spite of careful checking, an oversight almost ruined the second broadcast. Three days before the program it was called to our attention that *the board*—the fundamental ingredient for two of the experiments—had been omitted from the instruction sheet. A mimeographed postcard was immediately sent to the radio coordinator in each elementary school. This teacher-coordinator voluntarily assumes as one of her duties the distribution of all radio material to the faculty of her school. The conscientious manner in which this key person performs such duties was reflected in the fact that not one complaint came to our division about the omission of the board after the broadcast was finished.

Presentation

Mr. Whitney decided to make transcriptions of his first six programs so that he could visit schools during the broadcasts. Alert for directions, vocabulary, haste or speech mannerisms that caused confusion or indecision among the students, he picked up valuable pointers for improving each succeeding broadcast. (Picture III on page 320).

Convinced by the testing period that the pacing of the program could be regulated only by actually working with children, "experimenters" from middle grades were present in the studio each week to perform the experiments. This procedure is still followed and will continue to be on every series of this type.

An educational radio program such as *Science For You* when carried by a commercial station cannot succeed without the full cooperation of the station manager. That this program merited his approval was evidenced in the cooperation Mr. Whitney received each week when, with a queue of children and a big box from which he produced assorted articles ranging from a shovelful of dirt and a gallon of water to a roll of rising yeast dough, he arrived to set up the studio experiment table for the day's lesson.

Every Tuesday at 1:15 more than

Mr. Whitney visits a schoolroom to watch the children during a broadcast so that he may improve techniques on succeeding broadcasts.

7,500 children watched with avid interest the duplication of the studio scene in their own classroom. As the easy, familiar voice of Mr. Whitney directed their work, 185 to 320 middle grade classes made electro-magnets, formed limestone, quenched fire with carbon dioxide, or bent light beams during the fourteen magic minutes of his visit to their science classes.

Evaluation

In this division, audio and visual aids are purchased for order only after recommendation of committees made up of teachers and principals. All items are kept on the active list only as long as they serve effectively. Educational radio is no exception. Each program is written for a specific audience, and only as long as it is useful is it continued.

Acceptance of *Science For You* was measured by an evaluation committee, mail, a listening survey, audio-visual orders, and administration appraisal. Before the program went on the air, an evaluation committee of ten teachers was formed. Each agreed to send independently a weekly personal and class reaction after every broadcast. In addition each indicated whether or not recorded duplicates of the program should be placed in the transcription library for future use by teachers. The results were gratifying. Every broadcast was approved and recommended for the transcription library by an overwhelming majority.

More than 250 children's letters were received by Mr. Whitney during the series. Excerpts from some of them are indicative of the acceptance and projection of the series.

I am interested in science and I like to do and watch experiments. The way you speak, it sounds like you are standing right next to us. It seems like you know just what we are doing. We repeated some of the experiments and hope you will have many more for us.

* * *

Our room listened to your broadcast this afternoon. I think it was the best one you have made. I like it because we each had our own flower to look at, and we learned a lot about the flowers in the classroom that we could not learn by just looking at them outside. I did not know that there was such a thing as a sepals, ovary, or a stamens. Now I have learned that there is more to a flower than I thought.

* * *

Every week after I listen to your radio programs I go home and try to do the experiments by myself. When I tried to do the one where you have to light the candle, my mother kept saying: "Stop playing with matches. You might get burned." I said: "Oh, Mother, this is one of the experiments that we do at school."

I think you should continue these programs. They mean a lot to my room as most of us are very interested in science. I regret to say, however, that the one who likes science the most was absent last week. At home I was going to try experiment II, but Mother didn't want me to use all our vinegar, so I didn't do it. Thanks again, from my whole room.

A listening survey made that spring showed that 185 rooms listened regularly and 320 occasionally to *Science For You*. This range was encouraging to Mr. Whitney who urged teachers to use the program only when it advanced the science program in the school and when in their judgment it supplemented the regular classroom science unit. He suggested in the handbook that programs coming before the class had reached a particular unit might be recorded and used at the appropriate time.

An increase in orders for science teaching aids suggested in the radio handbook reflected the utilization of the programs. For the entire series, forty-three audio-visual aids were listed. A comparison of the number of orders placed by teachers for the same materials in the previous semester with those requested during the broadcast brought these interesting figures to light. In the preceding semester the total orders were 1,317. During the period of the broadcasts 2,195 orders were received. Since there was no other explanation for the additional 872 requests, we attributed the sixty-six per cent increase to the use of these materials in connection with the radio series.

In appraising the series subjectively Mr. Whitney found it helpful in his work as science consultant. Before using radio in his consultant work, teaching and college duties permitted him perhaps one or two school visits a week. With eighty-six schools to visit he was a long time making return calls to his friends. By radio he stepped into as many as 320 classrooms a week and kept in constant touch with the teachers and children who always welcomed his visits. In addition, he knew his visit was convenient because only those who wanted him at that particular hour would turn the "on" button.

Evidences of further utilization by teachers and children were so conclusive that some of these were made into a booklet and entered in the Annual Radio Program Utilization Competition of the Thirteenth School Broadcast Conference held in Chicago. The program was honored with a merit award in that city in competition with educational programs throughout the country.

When KSLH, the St. Louis Board of Education station, begins operations in April, *Science For You* will be presented by request to students of the seventh and eighth grades. A similar program for children of the second and third grades will satisfy the demands of primary teachers for help with the development of simple science concepts for young children. This new program has been subjected to the same tests with teachers and children as was the original science series. The advance handbook is written, and primary teachers are expectantly awaiting *Let's Find Out* when April comes.

That this series has accomplished one of its main purposes is evidenced in an observation of William N. Sellman, assistant superintendent of instruction in charge of this work, when he said: "Having discussed the broadcast with teachers . . . I believe these programs have demonstrated to them that using experiments in middle grades is not difficult but a natural and effective way of conducting science activities in their classrooms."

By O. J. LUPONE and EDWARD P. POWERS

Science in the Nursery School

The unique and necessary contributions science experiences can provide nursery school children are described by O. J. LuPone, principal, Ocean Avenue School, and Edward P. Powers, elementary science specialist, Northport, New York, public schools.

MOST AUTHORITIES ARE IN AGREEMENT that the first six years of a child's life are of fundamental importance in that habits and attitudes become more or less permanently fixed. It follows that a child's behavior at adolescence is the natural and inevitable culmination of his early developmental experiences.

The nursery school does not and should not give young children any body of content. Its concern should be to develop children to their fullest potentials, physically and mentally, with respect to their psychological and physiological development. The aim of the nursery school, in short, is to take children where they are and bring them as far as possible in their development. In this development science experiences play an important part.

Many young children are misguided seriously about things which are close to them and play an important part in their development. Dogs and other pets, the dark, thunder and lightning, growth and death, the leaves falling, and many other factors are of vital concern to them. To obtain intelligent guidance for young, impressionable minds, it becomes imperative that science experiences be provided. Understanding of the natural and physical environment, commensurate with maturation, is the fundamental basis for learning.

Animals and Plants

Young children are not afraid of animals unless fear complexes have been developed by well-meaning but misguided adults. Young children who have been told that snakes are cold and slimy grow up with that impression unless they have had the experience of handling snakes. If they have, they enjoy them and do not fear them as something evil.

Often children are told that toads make warts but they find out when they handle toads that they do not make warts as superstitious adults would have them believe. They learn too, if they have science experiences, that worms are not dangerous. Rubbing the fur of home and farm animals builds up a concept regarding them—that they are our friends and we should care for them.

The elimination of unnecessary fears concerning animals will develop the right attitudes concerning them. How fortunate is the nursery school child who has the opportunity to care for a pet, be it a snake, a toad, a turtle or a rabbit. To feed it, to clean the pen, to handle and fondle it develop an understanding of animal life far beyond our realizations. The understanding of animal life results in a fuller enjoyment of the environment and reduces fears and superstitions. It is amazing how many children are afraid of animals. Experiences provided by

the nursery school can help to overcome this fear.

Enrichment of interests in natural phenomena can also be provided in the nursery school. For example, children are interested in growing things. They can plant seeds and bulbs. They can open acorns. They can examine roots and do simple experiments with plants.

What fun the nursery school garden can be! There the children learn about the different tools and the way they are used. No longer is a hoe, a rake, a sprinkling can or a spade just these things. Now they have meaning and purpose. They help us do work like gardening.

The growth of animals and plants can be closely observed. Watching eggs hatch is a revealing experience. The children see that some forms of life begin with an egg. Observations of rabbits and white mice acquaint children with the processes of mating and birth and provide the healthiest type of sex education.

Weather and Other Phenomena

And then there is the weather. We staid adults accept it as matter of course. The children find adventure in its changes. They wonder about the rain and the snow and the wind. They find fun in watching the clouds and fog. They want to know what makes them happen. Water evaporating in a saucer, drops forming on a pitcher of iced lemonade or snowflakes seen through a magnifying glass provide invaluable opportunities for science learnings.

A road crew tearing up a road or rebuilding it, a new house being built, an erupted road in the spring, the melting snow, the light bulbs and the toaster, the blue sky and the colors of the birds, the glow of the cat's eyes at night, the pictures in the family album, and the voices on the radio and records are other sources for science learnings.

Children are explorers of their world. For them the book of life opens. Too often we adults close it with curt or vague answers. The questioning minds of the young seek diversion in other things, and a great deal is lost. How important it is for us to teach them careful observation of the world about them and to guide them in drawing correct conclusions about it.

Through science experiences children cannot help but increase their vocabularies. Science experiences give them something to talk about and stimulate their artistic tendencies in poetry, painting, and clay modeling. All these experiences should be supplemented by stories that help to develop relationships.

For example, children drink milk. If they are fortunate, they have seen cows and have been to the dairy on a nursery school trip. These relationships can be developed in a story—a story without complicated plots but full of great meaning. Thus, not only language but the seeds of better and more intelligent citizenship are being developed.

The conclusions are obvious. To nursery school children, science experiences can make unique and necessary contributions:

The elimination of some common superstitions and the development of healthy attitudes regarding their environment.

An enrichment and expansion of interest in the world in which they live.

The vehicle through which language development is broadened by creative experiences.

On the International Scene

On the Rim of the Desert

elma P. Kessler, American Friends Service Committee, Philadelphia, describes the schools for refugee children of Southern Palestine. Through vision, cooperation and meager funds they are providing some educational opportunities for children who otherwise would have none.

American educators are entitled to feel a special interest in the refugee schools of Southern Palestine. Thanks to a contribution of four thousand dollars from the National Education Association, scores of volunteer teachers can now be given small token payments. The story behind this generous act of fellowship is unusual and inspiring.

Late in 1948 the United Nations asked the American Friends Service Committee (Quakers) to administer a relief program to the quarter of a million Arab refugees who had poured down from the north into the Gaza "strip", a narrow oblong of land stretching for twenty-five miles along the eastern shore of the Mediterranean. Gaza, the principal town, will be remembered as the scene of Samson's downfall. In modern times, some 80,000 people have made their home there, earning their living by tilling the soil or managing small craft and business enterprises.

The invasion of this semi-arid territory by more than 200,000 helpless refugees had precipitated a crisis of disaster proportions by last December when the first contingent of Quaker workers reached Gaza. Using funds supplied by the United Nations Relief for Palestine Refugees and by UNICEF, and aided by the Egyptian government which controls the district, the AFSC immediately organized mass food distributions and set up medical and sanitation services. By Spring, although relief needs still demanded almost the total energy of the Friends, they felt compelled to give some attention to a serious problem that from the first had troubled them. Thousands of boys and girls were trapped in the aimless idleness which victimizes all refugee populations; with no hope of obtaining even an elementary education or of learning a useful trade, they had neither a present nor a future.

In Cairo, at the School of Social Work there was a highly gifted educator, Dr. Abdul Hamid Zaki. As dean of the school he had demonstrated vision, administrative ability, and a genius for inspiring colleagues. It was arranged for him to be loaned to the Quakers. Lacking funds (the UN relief budget made no provision for education), equipment, and an assured teaching staff, he accepted the almost impossible assignment of setting up a school system for refugee children.

* *Buildings and Equipment.* On his arrival in Palestine, Dr. Zaki found seventeen permanent school buildings, all of them staffed by qualified teachers. Among the refugees he discovered several hundred men and women who were either experienced teachers or could be prepared for teaching by short emergency courses. 70,000 children living in the towns and camps needed an education! With these facts in hand he called a public meeting for all teachers and prospective teachers, explained the Quakers' concern for the children, and asked for everyone's cooperation. Apparently the teachers of Palestine are as dedicated a group as those of other countries, for almost to a man—and woman—they volunteered their services.

As for buildings it was decided that the Gaza schools should be used in the morning by children of permanent residents, in the afternoon by the young refugees. Tent schools would be set up by the Quakers in the huge refugee camps and, in several places, abandoned buildings would be taken over for classes. Supported by faith and hope, the program was off to a start!

Equipment was improvised. Seats were empty flour sacks stuffed with straw, wooden packing cases, building tiles, thin straw mats or simply the sand. A slab of stone precariously balanced on two piles of uneven rocks might serve as a teacher's desk. Plywood painted black made acceptable blackboards but textbooks, pencils, paper and chalk were practically non-existent. Despite these handicaps, the children have loved going to school and the teachers point proudly to the high records of attendance. "It's easy to dismiss the morning class," one teacher said recently. "They know the room is needed for the next shift. But not the afternoon class—they would gladly stay until dark!"

By Autumn more than 16,000 boys and girls were attending school regularly. Impres-

More than five persons call this "home." But at least the two little boys in front can spend part of the day in school.

The summer sun blazes down outside but in the shady tent small, still heads register deep attention as the day's lesson begins.

Photographs by Campbell Hayes

sive as this figure is, it represents only twenty-five percent of the children who should be receiving an education: the other three-fourths are waiting until funds can be found to include them in the program.

* *Curriculum, Health and Recreation.* To a Westerner a day spent in visiting tent schools is a strange and delightful experience. The youngsters sit close together, "not from necessity but just in the cozy Arab manner," explains a Quaker worker. When class begins the children are comfortably spaced but as the lesson goes on, they move closer in. An hour later, they are in a tight huddle in the middle of the tent.

In another school, the first graders—perhaps a hundred of them—clad in ragged galibyas and army hand-me-downs stand in rows while a young teacher shouts a poem to them. Merrily the children sing-song the lines after him. The burden of the poem, composed by the teachers, is that since they are all good

Arab children they should keep the camp grounds clean. And the lesson "sticks"; when class is dismissed, the children scurry around, tidying the school grounds and leveling off a playing field.

From simple projects like these, pupils graduate to the 4 R's—reading, writing, arithmetic, and religion. The majority of the refugees are, of course, Moslems, and the one text the children can really call their own is a chapter of the Koran, a gift of the Anglican Church Mission Society.

Besides providing an education, the schools have became a sort of watch-dog over the pupils' health. Each day the children bring with them one of the flat hollow loaves of native bread. To eat with this they are given margarine and small "left-overs" from the mass distribution. UNICEF supplies a daily glass of milk. Cod-liver oil, furnished by the Quakers, is the children's greatest treat. As they pass by in line, the teacher pours a spoonful of oil into their mouths and it is all she can do to keep them from licking the spoon!

With the approach of winter which, though short, is miserably cold and rainy, it was possible for the Quakers to distribute blankets to the children. Made into cloaks they furnish protection by day and much-needed warmth by night. Regular DDT spraying of homes, clothing and bodies has held serious illnesses in check.

Determined that their uprooted charges shall have as normal a child life as possible, the educators and relief workers in Gaza have instituted a number of recreational activities. Football games between schools are held three times a week and it is almost breathtaking to watch the enthusiasm with which they are played on the grassless, stony, sunbaked fields. Many playgrounds, volleyball courts and sports fields are already in use. Last spring, on a miniature Olympics day, refugee youth walked away with all the prizes!

* *Promise for the Future.* It is a tribute to Dr. Zaki and his courageous staff that the first six months of the new program have accomplished the equivalent of a year's work by Palestinian standards. Sufficient funds are, of course, fundamental to its continuance and expansion. In addition to the sources already mentioned, UNESCO, United Presbyterian Fund, the Jewish Agency in London, and the Bentwick Fund (England) have given generous support. But to carry out the work on a scale that will include all the 70,000 school-age refugee children in Southern Palestine will require a large scale appropriation by the United Nations. Measured against the great need, the refugee schools are a challenge for the present and a promise for the future.

Making the Best of It

FRANCES R. HANCOCK, superintendent of the Marlborough Road Nursery School, Flixton, Lancashire, England, tells in a recent letter, how the nursery schools in Great Britain are overcoming the shortage of toys and other essential items.

> Our nursery school is a prefabricated building which was erected toward the end of the war. We take forty-four children from two to five years. We have three playrooms, bathroom, cloakroom, and the usual kitchen and staff quarters.
>
> The authorities provided us with small tables, chairs, and upboards. Our first job therefore was to fill these cupboards as best we could. Jigsaws were cut from pictures stuck on stout cardboard; blackboards were made out of cardboard painted black; various toys for colour matching, counting, fitting, and so on were made from odd pieces of wood and cotton reels.
>
> Toys for water play soon appeared, made from empty tins with holes pierced in the bottom, pieces of rubber tubing, corks, and bottles. Old pans brought from home were ideal for the sand pit, whilst the local garage provided us with old motor tyres which make fine swings when hung on ropes from the trees.
>
> We have been very fortunate lately as the parents have helped us to raise enough money to have a climbing frame made by a local firm. The children simply love this, and it has been well worth the effort of saving up. Now we are hoping to save up for a painting easel. At the moment we use the dining table propped up on a couple of chairs.
>
> Although we have no elaborate toys and equipment, the children have plenty of opportunity for all round development. They share with us the joys of making things for us all to use in the nursery, and encourage us to look upon the nursery as one big happy family.

ACEI Study Conference
Asheville, N. C., April 9-14, 1950

GENERAL SESSIONS, FORUMS, EXCURSIONS, assembly hours and thirty-one study classes are program features of the 1950 Conference. Here are the study classes grouped in four sections with their coordinators, background lecturers and leaders:

General Coordinator: Jean Betzner

Local Coordinators: Margaret Flintom, Edith Huffman

Staff Coordinators: Catherine Bowles, Mary E. Leeper

Theme: "Using What We Know for Children in the School, the Home, the Community"

For Study Classes 1-7: Background lectures on "Child Growth and Development" by L. Thomas Hopkins and Willard C. Olson

1. How to Study and Understand Children
   Leader: Frances Horwich
2. How Shall Teachers and Parents Report to Each Other
   Leader: Harold Shane
3. How Shall We Evaluate, Record Progress
   Leader: Maurice Ahrens
4. What Are Children's Developmental Needs
   Leader: Marie Hughes
5. How Shall We Provide for Children's Security with Peer Groups, Adults, School Achievements
   Leader: Jennie Wahlert
6. How Shall We Recognize the "Teachable Moment" in Learning
   Leader: Alice Miel
7. What Consideration Should Be Given Exceptional Children
   Leader: Elise Martens

For Study Classes 8-15: Background lectures on "School and Its Relation to Home and Family Life" by Winifred E. Bain

8. Being a Well-adjusted Parent
   Leader: Ernest Osborne
9. Being a Well-adjusted Teacher
   Leader: Betty Warner
10. Responsibility of Parents to Children, Children to Parents
    Leader: James L. Hymes, Jr.
11. Providing for Children's Physical Nurture
    Leader: Marion Faegre
12. Providing Children's Spiritual Nurture
    Leader: Agnes Snyder
13. Interchange of Experiences in Home, School and Community
    Leader: Lorene Fox
14. How Can Elementary Schools Teach Home and Family Life
    Leader: Myra Woodruff
15. Improving Programs for Children Under Six
    Leader: Hazel Gabbard

For Study Classes 16-22: Background lectures on "Organizing Experiences in Terms of Time, Space and Materials" by Laura Zirbes

16. Organization of Time and Program
    Leader: Arno Bellack
17. Using Materials
    Leader: Josephine Palmer
18. Released Time for Teachers
    Leader: Verna Walters
19. Arrangement of Room
    Leader: Lucile Lindberg
20. Children Working Alone and in Groups
    Leader: Joyce Cooper
21. Use of Playground Space
    Leader: Lee Thomas
22. Age Element of Progress
    Leader: Mary Haddow

For Study Classes 23-31: Background lectures on "Social Living at School" by William H. Kilpatrick

23. Using Science
    Leader: Paul Blackwood
24. Using Art
    Leader: John Harrison
25. Using Arithmetic
    Leader: Mary E. Coleman
26. Using Language Arts: Talking, Reading, Writing
    Leader: Helen Mackintosh
27. Group Guidance and Personal Development through Reading
    Leader: May Hill Arbuthnot
28. Using Music
    Leader: Emma Sheehy
29. Using Geography and History
    Leader: Fannie J. Ragland
30. Learning to Live in School Communities
    Leader: Kenneth Howe
31. Learning to Live in a Larger World
    Leader: Maycie K. Southall

WRITE TO ACEI HEADQUARTERS FOR REGISTRATION blanks and other information.

News and REVIEWS . . .

News HERE and THERE . .

By MARY E. LEEPER

New ACE Branches

El Dorado Association for Childhood Education, Arkansas
Knobel Association for Childhood Education, Arkansas
Whittier Association for Childhood Education, California
Miner Teachers College Association for Childhood Education, Washington, D. C.
Rock Island Intermediate Association for Childhood Education, Illinois
Elkhart Association for Childhood Education, Indiana
Texas Western College Association for Childhood Education, Texas

ACEI Membership Service Bulletin

The first 1950 ACEI service bulletin, *Partners in Education—A Guide to the Study of Home-School Relationships*, is now ready for distribution. As the title suggests, this is material that will be eagerly read, discussed and used by those who are aware of the importance of relationships between the home and the school. The topics of the five sections indicate the type of help that is offered:

Vitalizing the Partnership
Setting the Sights
Overcoming the Obstacles
Facing the Problem of Feelings
Achieving—Together

The cooperative way in which this material has been developed gives promise of its real usefulness. It began as a project of one of the steering committees of the National Conference on Family Life. This committee was concerned with furthering better relations between homes and schools. The co-chairmen were Muriel Brown, consultant in family life education, Office of Education, Washington, D. C., and Ruth Cunningham, associate professor of education, Teachers College, Columbia University, New York, New York.

In developing material, the committee sought the help of groups located "in different and widely separated places." These groups discussed, used and evaluted ideas and plans. They sent the committee illustrations from "real-life" situations. This bulletin is not material prepared by one person sitting at a desk. Many have shared in its development and the suggestions made have been used in actual situations.

The project does not end with the publishing of the bulletin. Those who use this guide are asked to share with ACEI information about their work—descriptions of new or better ways of working that will contribute to a continuing improvement of our home-school relationships. The bulletin has been mailed to ACEI contributing and life members and to the officers of branches. Others may order it from the Association for Childhood Education International, 1200 Fifteenth Street, Northwest, Washington 5, D. C., Price 75¢.

Conference on Occupied Countries

On December 9 and 10, four hundred seventy persons, representing over two hundred voluntary and government agencies gathered in Washington for the first national conference to consider problems of education and cultural affairs in the countries still under United States occupation.

For the first time since the war, educational leaders of Japan and Germany shared the platform with American educators, statesmen, and other national leaders. For this conference, speakers had flown from Tokyo, Berlin, and Vienna. Delegates, while drawn mainly from the eastern seaboard, included persons sent from California, Colorado, Georgia, Tennessee, and many middle western states. Some came to report, all to learn, express opinions, reiterate their belief in the fundamental importance of education as a decisive factor in the success or failure of our American mission in Japan, in Germany and in Austria.

A report of this conference on the Occupied Areas may be secured from Commission on the Occupied Areas, 744 Jackson Place, N. W., Washington, D. C., Price 50¢.

Memorial Fund Honoring Susan Isaacs

Friends and students of Susan Isaacs of England are launching a memorial fund to honor her memory and the great work she did for children. It is felt that the most appro-

priate memorial is to endow a research fellowship in her name. Her deep interest was in research. Her great regret was that so few facilities existed which would enable those qualified to carry on research related to the education of young children.

Generous contributions will be necessary if the present objective is to be achieved. Many in this country who are grateful for the help she has given them—personally or through her writings—will wish to express gratitude by a gift to this memorial fund. Contributions should be sent to Miss D. E. M. Gardner, University of London, Institute of Education, Malet Street, W. C. 1, London.

Meetings

THE INTERNATIONAL COUNCIL FOR EXCEPTIONAL CHILDREN will hold its twenty-eighth annual convention in Chicago, Illinois, March 19th through the 23rd. The theme of the meeting will be "Meeting the Needs of All the Children of All the People." For information write: Mary E. Courtenay, Department of Special Education, Chicago Public Schools.

THE NATIONAL CONFERENCE ON AMERICAN FOLKLORE FOR YOUTH will hold its second national meeting at Frostburg, Maryland, June 28th through the 30th. The theme of the meeting will be "How American Folklore Is Being Used in Our Schools." Harold W. Thompson of Cornell University will give the keynote address. For information address: Elizabeth Pilant, executive secretary, Ball State Teachers College, Muncie, Indiana.

Institute on United Nations

Mount Holyoke Institute on the United Nations will be held June 25th through July 22nd at South Hadley, Massachusetts. The theme chosen is "Towards a World Community." Weekly program topics include:

Building the Foundations: Technical Assistance and Point Four
Extending the Community of Nations: Germany and Japan
Developing Regional Groupings: Intermediate or Final Step
Prospects for a World Community: A Five-year Appraisal of the United Nations.

This institute is for men and women concerned with international affairs. Student assistantships are available to a limited number of college students.

American Music Recorded for Children of Other Lands

Thousands of school children in other countries are hearing American boys and girls sing and play their favorite songs during this school year. This new avenue of acquaintance was opened up by the Junior Red Cross international school music program.

Under the guidance of a committee of the national Junior Red Cross staff and the Music Educators National Conference, an album of six records was compiled from recordings made by fifty-one high school orchestras, bands, choruses, and instrumental ensembles all over the United States. One thousand of these albums have been made to send to the junior members of other national Red Cross societies who indicated their desire to participate in the program.

The purpose is to use the music produced by American high school students to create additional bonds of understanding between them and young people in other countries. It was felt that receiving the gift of an album of recordings made exclusively for young people abroad is tangible proof of the interest and goodwill young Americans feel toward them.

The future of this newest of the Junior Red Cross international projects depends upon evaluations which will be made from every angle, including its reception abroad. Music educators and Junior Red Cross leaders who have worked with it thus far are enthusiastic about its potential value for spreading goodwill among the youth of the world.

Awards for Research

Pi Lambda Theta, National Association for Women in Education, announces two awards of $400 each, to be granted on or before August 15, 1950, for significant research studies in education. These awards will be from the Ella V. Dobbs Fellowship Fund.

An unpublished study may be submitted on any aspect of the professional problems and contributions of women, either in education or in some other field. A study may be submitted by any individual, whether or not engaged at present in educational work, or by any chapter or group of members of Pi Lambda Theta.

Requests for information concerning the awards should be addressed to the chairman of the Committee on Studies and Awards, Alice H. Hayden, University of Washington, Seattle 5, Washington.

Books for CHILDREN . .

Editor, MAY HILL ARBUTHNOT

Poetry

BRIDLED WITH RAINBOWS. *By Sara and John E. Brewton. Decorations by Vera Bock. New York: Macmillan, 60 Fifth Ave., 1949. Pp. 191. $2.75.*

OPEN THE DOOR. *By Marion Edey. Illustrated by Dorothy Grider. New York: Scribner's, 597 Fifth Ave., 1949. Pp. 79. $2.*

THE LITTLE HILL. *Poems and Pictures by Harry Behn. New York: Harcourt, Brace, 383 Madison Ave., 1949. Pp. 58. $2.*

THE LITTLE WHISTLER. *By Frances Frost. Illustrated by Roger Duvoisin. New York: Whittlesey House, 330 W. 42nd St., 1949. Pp. 48. $2.*

It has been many a season since four delightful books of poetry for children appeared all at once. It is, perhaps, indicative of a widespread awakening to the importance of poetry for children's delight and for ear training and speech. But let's keep enjoyment first and foremost.

Of the three anthologies by Mr. Brewton *Bridled With Rainbows* is one of the finest. It contains much new material and such new names as Ivy Eastwick and Barbara Young. The title suggests flights of fancy and real flights too, and so it is. There are poems of travel, adventure, city and country, play and school, land and sea and cozy stay-at-home verses. All the Brewton anthologies are carefully selected for child appeal and genuine poetic merit. This is one of the freshest and the gayest: a *must* for all who love children and poetry.—Ages 6-14.

Mrs. Edey's verses, written for and about her own children, are especially notable for their singing quality. Children will be joining in "Open the Door" or "So Many Monkeys" the second time they hear them, and the swing and lilt of many others will catch their interest. There is an out-of-door atmosphere to many of the verses, with ants, crickets, bats, catbirds and woodchucks playing their parts in the child's experience. There are also naps, games, "Animals in the Tub" and other typical child activities. This small book with its gay illustrations will be a welcome addition to verse for children.

Mr. Behn's slender volume is for older children, 7 to 12 perhaps. "Mr. Pyme" is good nonsense and "Halloween" is everydayish but on the whole these charming lyrics are subtle, genuinely imaginative, and will delight adults as well as children. "The Little Hill" is a child's sense of possessing a secret place all his own. "Spring" is as lovely as a song. "Trees Are the Kindest Things I Know," "Undine's Garden" and "Spring Rain" will charm the thoughtful child both with their music and their arresting ideas.

Gay with the color and action Mr. Duvoisin's pictures give *The Little Whistler,* a book of poems, unusual eye appeal. Frances Frost's earlier book of poetry, *Pool in the Meadow,* contained poetry of such unusual grace that it is surprising to find in this new book verses of uneven quality. Many of them impress the reader as being written down to small children. The title poem is gay and delightful. Grouping the poems around the four seasons is a useful arrangement. But to compare her "Little Fox Lost" in this book with her "Night of Wind," an earlier treatment of the same subject, is to wish for more of the authentic poetry of the latter. "Beach Fire" is pleasant and the last two Christmas poems are fine indeed.—Ages 6-10.

Old World Fairy Tales

THE EMPEROR'S NEW CLOTHES. *By Hans Christian Andersen. Illustrated by Virginia Lee Burton. Boston: Houghton, 2 Park Ave., 1949. Pp. 44. $2.* One of Andersen's wittiest satires on pomposity and pretense is undoubtedly *The Emperor's New Clothes.* In this format, designed and illustrated by Virginia Lee Burton, it is a distinguished and irresistible book for any child's library.

THE WHITE RING. *By Enys Tregarthen. Edited by Elizabeth Yates. Illustrated by Nora Unwin. New York: Harcourt, 1949. Pp. 65. $2.* All the Cornish tales of the piskeys, collected by Enys Tregarthen and edited by Miss Yates, have a peculiar beauty and *The White Ring* is a treasure. It tells the story of an old fisherman, Uter, who finds a fighting, biting baby girl, obviously a "skilly-widden." But unafraid of her fairy origin he names her Nan, trains her and gentles her

(*Continued on page* 332)

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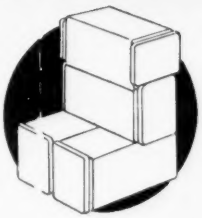

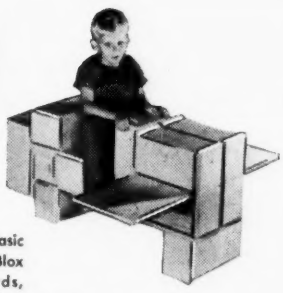

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Books for CHILDREN

(*Continued from page 330*)

until she loves not only him but all living creatures. When her chance comes to return to fairyland, she refuses because she loves old Uter more than herself. Then Uter turns into a young fairy emperor and Nan and Uter are united by the magic of the White Ring of Kindly Deeds and return to fairyland. Nora Unwin's exquisite pictures add the last touch of beauty to this Celtic fairy tale.

THE DANCING KETTLE AND OTHER JAPANESE FOLK TALES. *By Yoshiko Uchida. Illustrated by Richard C. Jones. New York: Harcourt, 1949. Pp. 174. $2.25.* Most of the Japanese fairy tales have long been out of print, so these fourteen stories are a welcome addition to folk-tale collections. Miss Uchida has retold some of the old favorites such as "The Tongue-Cut Sparrow," "One-Inch Boy," and "Urashima"—the Japanese Rip Van Winkle. They are full of magic and of kindly, moral people triumphing over evil.

THE LITTLE GREY MEN. *By Denys Watkins-Pitchford. Illustrated by the author. New York: Scribner's, 1949. Pp. 249. $2.50.* It seems to take the English or the Celts to write a grave, sustained story of the wee folk or the never-never world of talking beasts that carries conviction. *The Little Grey Men* is such a tale and it is already being compared with Kenneth Grahame's *Wind In the Willows.* It is a long adventure story of three ancient gnomes who go in search of a lost brother. Sneezewort, Baldmoney, and Dodder are remarkable characterizations and their various boats are the most fascinating craft ever to appear in fairylore. From these, the reader gets a gnomes-eye view of river life with all its delights and its terrors. Crow Wood and its cruel owner, the Giant Grum, furnish the greatest perils. Many readers will wish that the author could have let his gnomes solve their problem without introducing Pan, in Kenneth Grahame style. This is perhaps the only flaw in a long fairy tale that manages to be as full of excitement as it is of beauty.—Ages 8-12.

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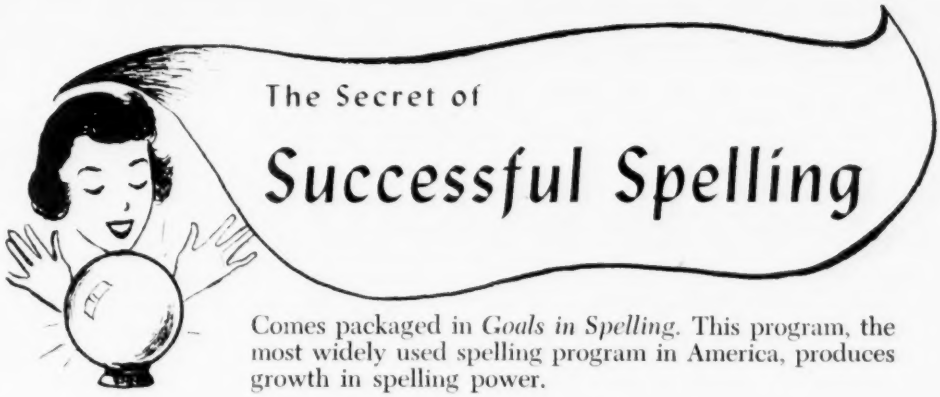

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Books for TEACHERS . .

Editor, RUTH G. STRICKLAND

CHILD DEVELOPMENT. *By Willard C. Olson. Boston: D. C. Heath and Company, 285 Columbus Ave., 1949. Pp. 417. $4.* For twenty years research in child development has been accumulating. Some has been done in centers specifically devoted to the study of the normal, whole, well child. Some has been carried on in centers for other professions—pediatrics, nutrition, psychology, psychiatry, biology, anthropology, sociology—and brought to the schools' attention and into relationship by workers in this new field of child development.

The impact of this twenty-year effort is most apparent in nomenclature. Today "child development" is a good term; many colleges offer work in "child development;" all schools speak glowingly of it—and mean everything and nothing by it.

The impact on school practice has been less significant than the change in terminology. There are many reasons for this not unexpected lag but one stands out—books in child development and college courses built upon them have remained isolated from what-do-you-do-about-it. Child development has been one thing; its meaning for practice, its significance, its message for the practioner has almost always come in the next volume (or the next semester), too late for real personal incorporation.

Willard Olson's *Child Development* is significant for trying to end this departmentalization. The book has many virtues: its emphasis on longitudinal studies; its clear filling-in of what is meant by "the whole child"; the inclusion of much material on group relationships; the consistent development of the concept of "pacing" and the stress on the desirability of a lush environment. Most important of all to this reviewer is that these important ideas (and many, many others) are all directed consciously toward a reading public of teachers—prospective or in-service. This conscious direction gives a point, missing in many texts, to the early chapters of the book which are fairly traditional in name—the expression and nurture of physical growth, of mental growth, the affective life of the child, and so on.

The direction becomes explicit and even more exciting in some of the concluding chapters: The Teacher in Individual and Group Relationships, Concepts of Child Development in Curriculum and Methods, Concepts of Child Development in the Organization and Administration of Schools, The Philosophy of Growth. Here are not only facts but *meaning* for the educator as well. Willard Olson's joint responsibility as director of research in child development and as administrator of the laboratory school at the University of Michigan pays rich dividends here.

This book is focused on the elementary school; teachers, supervisors, and administrators are lucky to have it. Their counterparts at secondary and collegiate levels can only hope that their fields will someday be as well served. There are a number of very clear charts, some even strikingly attractive. The style is simple and direct, readable but not necessarily gripping.

Child development frequently is taught in the freshman year of four-year teacher-education programs. Style, length, complexity of concepts may mean that this is not *the* book for this beginning age but all other professional workers will find it unique in its wholeness, and strikingly helpful in its direct bearing on the school's many problems and concerns.—*Reviewed by* JAMES L. HYMES, *professor of education, George Peabody College for Teachers, Nashville, Tennessee.*

ADOLESCENT FANTASY: An Investigation of the Picture-Story Method of Personality Study. *By Percival Symonds. Morningside Heights, New York: Columbia University Press, 1949. Pp. 397. $6.* Forty-two pictures prepared according to the author's specifications—that they suggest action, contain a minimum of detail, and show characters with whom the subject could readily identify himself—were used in this study. Some of the cards pictured both male and female adolescents and adults, some male adolescents, and others female adolescents.

During 1940-1941, stories on these pictures were secured from forty typical boys and girls ranging in age from 12 to 18 years in grades 7 to 12. Additional data were secured from the boys and girls through interviews

(*Continued on page* 336)

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Books for TEACHERS

(*Continued from page* 334)

and questionnaires, and from their teachers, principals, guidance officers, parents, and school records.

There was no systematic plan for theme analysis of the stories; the readers watched for repeated elements. The stories were read three times in different order, for checking. The capacity to recognize themes varied with the training and background and the psychology of the analyst. Recognized themes varied from very specific to very general, and were considered significant only if they occurred in three or more of the individual forty-two stories.

Some recognized characteristics of adolescent fantasy were: themes of aggression and love, which were practically universal; punishment followed aggression in monotonous sequence; the stories of many boys, especially the younger ones, included episodes of aggression characterized by frenzied excitement; frequently aggression was occasioned by rivalry and jealousy; happiness occurred less frequently as a theme than depression; they dream of success and achievement but rather unrealistically. Educators will be interested in the fantasies of the adolescents with regard to school:

> School instead of being a happy place is to them a place which arouses anxiety. Punishment and the threat of failure hung over many of these adolescent storytellers. To them, school was a place of assigned tasks, a challenge to success, and the dread of failure . . . . Teachers were almost always stern, threatening, and avenging figures—seldom was any affection shown by or for them.

In delineating the relationship between fantasy and behavior, Symonds found that projection of personality occurred at about six levels ranging from cases where the relationship between themes and personality was direct and clear to cases where the stories referred to wishes and drives deeply disguised by symbolism. It was indicated that there were many ways of handling conflicts but they appeared mutually exclusive. If an individual worked out a conflict in reality or by developing a symptom, the conflict showed itself in behavior and character but not in fantasy. If he inhibited the outward expression of a conflict, he might try to work out the conflict in fantasy. The stories were most revealing when interpreted by assuming that they are projections of trends within the individual and then attempting to understand them in the light of all possible transformations and disguises by which the individual protects himself from anxiety which would be aroused by facing his unacceptable drives. The same dynamic principles explain the personality and adjustments of well-adjusted and of poorly-adjusted individuals. Individual trends revealed by the picture-story method are not superficial, but represent persisting trends in the individual.

Several features in the book are of particular value. The pictures and the methodology suggested should lead to other useful and significant research into adolescent fantasy life. The two cases of a boy with delinquent tendencies and of a well-adjusted boy are analyzed in detail and serve to show not only the method but some of the significant aspects of fantasy and behavior. The study points to the power with which the method can penetrate into motives and underlying personality trends of adolescents.—*Reviewed by* NICHOLAS A. FATTU, *associate professor of educational psychology, Indiana University.*

SOCIAL WORK AS HUMAN RELATIONS. *Anniversary Papers of the New York School of Social Work and the Community Service Society of New York: Morningside Heights, New York: Columbia University Press, 1949. Pp. 288. $3.75.* These papers give a birdseye view of the present status of social work and offer teachers an easy introduction to the present concepts of a closely related profession. The book should be read as a whole, but for the general reader some papers will prove of more value than others. A few of these are briefly noted.

Part I—*Theory and Technique*—in which these papers appear should be read in its entirety. Gordon Hamilton's "Helping People—the Growth of a Profession" gives a succinct account of the philosophy of social work. These basic principles are applicable to all of the service professions and are especially valuable to the teacher. Methods of social work are mentioned. Karl DeSchweinitz presents an accurate survey of governmental responsibility for human welfare. This

scholarly paper would bear study by all citizens in a democracy.

Stuart Chase's "The Human Sciences and the Arts of Practice" is readable, and his listing of research done in the human sciences is informative. One would wish, however, that he had acquired a better understanding of the "art of practice" before attempting to relate it to the human sciences. Hal H. Griswold provides an excellent outline of the contribution of private social agencies which should be compared with DeSchweinitz' paper on public services.

Marianne Kris emphasizes the necessity of early referral of social problems. The first part of her article is of immediate and practical use to the teacher. Stanley Davies gives further weight to the necessity for background in the social sciences for social workers.

In Part II on *Professional Training*, Irwin Edman presents a valauble theory of education. Arlien Johnson's paper deals more specifically with professional education for social work, but some of her material has general application. Her theory that the individual "learns as a whole person and to learn he must experience growth" is well supported by the content of the article.

Benjamin E. Youngdahl emphasizes the "integrated student" as a criterion for an "integrated curriculum." He relates the content of social work education to four significant areas of knowledge. Eleanor Neustaedter's paper on "The Field Supervisor as an Educator" describes one learning experience which is shared alike by social workers and teachers.

Henry Brosin's article on "Psychiatry Experiments with Selection" is highly technical so that educators would probably find Sidney Berengarten's report on the "Pilot Study" more nearly applicable to the selection of future teachers. Both experts emphasize the value of a skillful interviewing technique in the process of selection of students who enter the service professions.

In Part III, *Vistas in Human Relations*, the article by L. C. Dunn on "The Scientific Spirit and Human Welfare" is especially timely. James B. Conant is erudite in his discussion of the contribution of the social science disciplines, but one wonders if he is accurately informed about the process of social work as an art or a field of practice. The realistic and challenging statement on "Human Relations on the World Scene" by Brock Chisholm provides an appropriate ending to the book. This paper should be especially interesting to the teacher who has so large a share in contributing to the adequacy of the citizens of tomorrow.

There is, naturally, much unevenness in the presentation of material. There is also some repetition and a lack of continuity unavoidable in such a collection. On the whole, however, this addition to the literature of social work should prove valuable to educators who are concerned with the larger issues of their profession in these troubled times.—*Reviewed by* AGNES ANDERSON, *assistant professor of social work, Indiana University.*

Notice to Readers of Childhood Education

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Editor, CELIA BURNS STENDLER

Science and Health

SCIENCE TEACHING IN RURAL AND SMALL TOWN SCHOOLS. *By Glenn O. Blough and Paul E. Blackwood. Bulletin 1949, No. 5, Federal Security Agency, Office of Education. Washington 25, D. C.: Superintendent of Documents, U.S. Government Printing Office. Pp. 55. 20c.* Another of the fine pamphlets by Blough and Blackwood, this one does not confine its usefulness as the title suggests. Elementary teachers in any kind of community will find it helpful. The bulletin is full of practical suggestions, showing how science can be used to solve problems. One very meaty section deals with science as it enriches rural living and centers around such areas as comfortable and efficient home life, understanding the weather, the sky, and the seasons, working with machines and equipment, effective use of soil and other natural resources, keeping safe and healthy. Teachers new to science will find the concrete material describing an incidental experience in primary grades and a planned experience in intermediate grades very helpful.

THE ELEMENTARY SCIENCE LIBRARY. *Prepared by Eva L. Gordon. Ithaca, New York: The New York State College of Agriculture, Cornell University. Pp. 63. Price not given.* Lists two hundred books published between 1938 and 1949. The books are grouped under such headings as general nature study, animal life, mammals, and the earth and the universe. Each book is carefully annotated and critically reviewed, with full information including age and grade span.

SAFETY THRU ELEMENTARY SCIENCE. *Prepared by the National Commission on Safety Education, National Science Teachers Association, National Education Association. Washington 6, D. C.: the Association. Pp. 40. 50c.* Deals with five areas: safe use of toys, tools and machines; safe use of electricity; fire prevention; hazards caused by animals. Material for each area is presented in brief phrases under four headings: science understandings, illustrative hazards, desirable practices, suggested activities. The pamphlet will be very useful to teachers desiring to connect safety education with science teaching.

For Parents and Teachers

HIPPITY HOP TO SCHOOL WITH THE SIXES AND SEVENS. *By Lillian Engelsen. Mt. Pleasant, Michigan: Department of Education, Central Michigan College of Education, 1949. Pp. 28. No price given.* In the same tradition as *Preparing Your Child for School* is this revised edition of *Hippity Hop To School,* a service bulletin for parents previously reviewed in this column. It emphasizes a developmental approach which will help parents better understand what children are like at six and seven, and includes sensible suggestions for ways in which the home can help the child learn the 3 R's. It seems to this writer that the last point is important. Instead of saying to parents, "Don't teach your child to read or write or figure at home; you'll do it wrong," this pamphlet takes a positive approach, recognizes that parents need to share in the child's learning experiences, and points out ways in which parents can help.

With A Mental Hygiene Emphasis

THE PRIMARY TEACHER. *By Helen Trager. 1790 Broadway, New York 19, New York: The National Committee for Mental Hygiene, Inc., 1949. Pp. 36. No price given.* This story of Miss Wheeler, a first grade teacher, and the children whom she taught describes in vivid detail the problems of the Eugene's, the Myrna's, the Dorothy's and Stephen's—problems which every primary teacher will recognize from first-hand experience. But this pamphlet is also the story of how Miss Wheeler was helped to deal with her problems, of how she arrived at a better understanding of child behavior through group-study techniques, of how she overcame her habit of thinking about children in stereotypes.

The Primary Teacher was originally published in *Intercultural Attitudes in the Making* and is based on the records of the Philadelphia Early Childhood Project. *The Primary Teacher* is more than intercultural education, however. It will give every teacher who reads it a sharper insight into the roots of child behavior, as well as specific suggestions for positive ways of working with children.

CATALOG OF MENTAL HEALTH PAMPHLETS AND REPRINTS. Available for Distribution 1949. *Compiled by Publications and Reports Branch, National Institute of Mental Health. Washington, D. C.: Federal Security Agency, Public Health Service. Pp. 60. No price given.* No attempt is made to evaluate the materials listed, but information concerning price and where the materials may be obtained is provided. Many of the materials are free. A table of contents with pamphlets grouped under topics and sub-topics makes location of materials simple.

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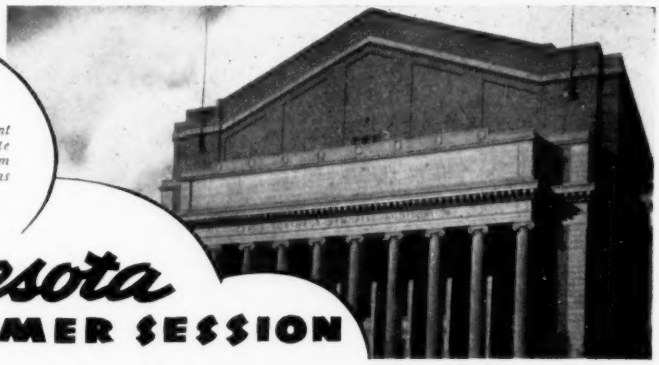

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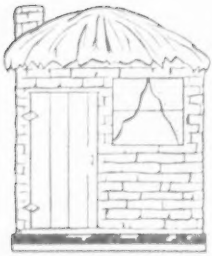

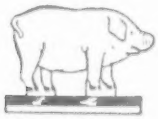

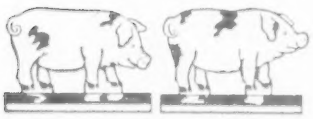

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